**10 GREAT TIPS FOR SPICING UP PLAIN BEZELS** *p. 46*

MARCH 2015

# ArtJewelry®

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## TOP ARTISTS CREATE Modern Iron Age Artifacts *p. 54*

*Iron nail pendant by Andy Cooperman,* p. 54

**METALS**

- Forge a steel ring to capture a coin *p. 56*
- How to transfer designs to metal *p. 26*

**Spotlight on Education**

A newbie **GOES TO SNAG** *p. 30*
Polymer clay **GOES TO COLLEGE** *p. 64*
Jewelry students **GO ABROAD** *p. 50*

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# THIS ISSUE
## March 2015

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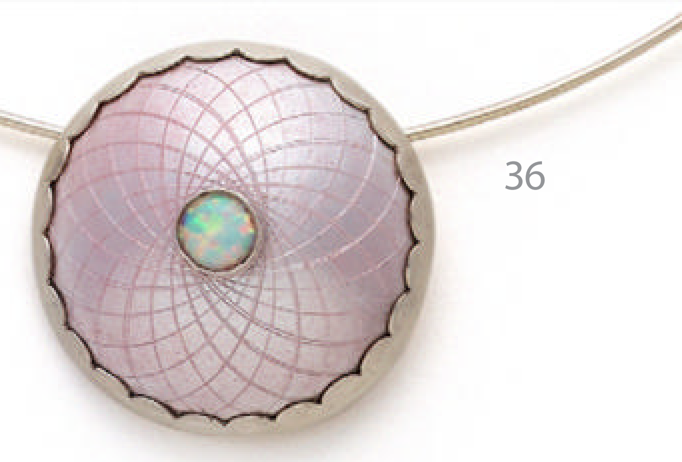
36

## features

reference
### 30 Navigating the SNAG Circus
**Spotlight on Education**
*How a first-timer on a budget made connections, got involved, and didn't collapse with exhaustion at the Society of North American Goldsmith's annual conference.*
**by Casey Sheppard**

intermediate
### 36 Try Your Hand at Guilloche
*Use a child's toy to mimic traditional machined patterns in silver, then use the pattered sheet to create an enameled pendant.*
**by Ingrid I. van der Meer**

all levels
### 46 Don't Settle for a Plain Bezel
*Add texture, mix metals, and alter edges to find ways to personalize your bezel setting.*
**by Jeff Fulkerson**

reference
### 50 Studying Abroad
**Spotlight on Education**
*Valentin Yotkov encourages students to push their geographical boundaries along with creative ones.*
**by Hazel L. Wheaton**

## cover story

on trend
### 54 Artifacts from the New Iron Age
*See how eight inventive jewelry makers transform industrial steel and iron into wearable works of art.*

intermediate/advanced
### 56 Forge Steel Pipe to Create a Captured-Coin Ring
*Abuse the rules of blacksmithing and fuse them with the tricks of the jewelry trade to create a modern relic.*
**by János Gábor Varga**

beginner
### 61 Earrings: Graduated Tube Earrings
*Use three different diameters of tubing to create a lightweight miniature cluster in sterling silver.*
**by Marthe Roberts/Shea**

reference
### 64 New Clay on Campus
**Spotlight on Education**
*A modern art form breaks new ground with the first-ever college-level polymer course in the United States.*
**by Annie Pennington**

46

61

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## in every issue

**6 From the Editor**
*Take a trip beyond*

**9 Up Front**
- *Workshop*
- *Reader Forum*
- *Product Reviews*
- *Symposium*
- *Conference*
- *Reader Tip*
- *Book Review*

**20 Business Savvy**
*Coming Clean About Disclosure*
**by Marlene Richey**

**22 Studio Savvy**
*Non-tool Studio Must-haves*
**by Christopher C. Darway**

**26 Metalsmithing 101**
*Applying Designs to Metal*
**by Michael David Sturlin**

**41 Gallery**
*A collection of cutting-edge jewelry to intrigue and inspire you.*

41

**82 The Back Page**
***Arthur Hash** goes high-tech to produce fine, facet-like patterns on his laser-etched enamel brooch.*

## reference

**73 Basics**

**79 Contacts & Suppliers**

50

9

## artjewelrymag.com

*Look for this Art+ icon for subscriber-only content!*

### online extras
**ArtJewelryMag.com**

» Check out student work from the 2014 SNAG conference at artjewelrymag.com/bonuscontentgallery.

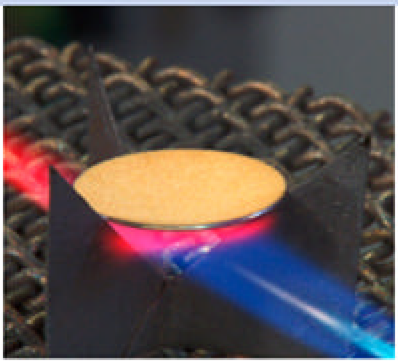
» **Free for a limited time!** From our Archives: How to make Metal Clay Bezel Wire

Spotlight on Education

» Metal clay artisans have their own study-abroad program thanks to expert educator Holly Gage.

Photo courtesy of Holly Gage.

### video section
**ArtJewelryMag.com/videos**



» Learn how to torch-fire enamel.

» See a demonstration of how to prepare and use two types of charcoal block.

### Art+ bonus subscriber project
**ArtJewelryMag.com/projects**

METALS | **INTERMEDIATE**

### Construct Fixed-back Cufflinks

*Fabricate a simple cufflink foundation, then dress up the face with a riveted layer of soldered tubes.*

**by Casey Sheppard**

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# FROM THE EDITOR | HAZEL WHEATON

## Take a trip beyond

Welcome to *Art Jewelry*'s 2015 Education issue! This is the issue in which, alongside our regular array of projects and technique articles, we take a look at the state of jewelry education. This year, our education stories have a little bit of a different flavor. We look at boundary breakers — educators, students, and artists who step beyond existing borders (either insitutional or personal) to explore. Casey Sheppard visited the Society of North American Goldsmiths (SNAG) conference for the first time ("Navigating the SNAG Circus," *page 30*); her account is all about finding her courage — to step forward, to learn, to meet people she's admired, and to have her work and her creative approach critiqued. Annie Pennington recounts the efforts of one determined artist to launch the world's first university-level course in polymer clay ("New Clay on Campus," *page 64*). And I had the pleasure of talking with Valentin Yotkov and Sharon Fosko about the adventurous path they took in setting up workshops that combined jewelry education with European travel ("Studying Abroad," *page 50*) at a time when few artists were doing so.

Laced throughout the issue there is another common element that we couldn't help noticing; once we noticed it, we had to shine a spotlight on it. The amazing work by Pat Flynn ("Up Front," *page 9*) and the ingenious method János Gábor Varga uses to work with industrial steel ("Forge a Steel Pipe to Create a Captured-Coin Ring," *page 56*) brought into sharp relief the work being done by modern artists in iron and steel. We just had to explore further. The results of that exploration can be seen in "Artifacts from the New Iron Age," *page 54*, and on our cover, where Andy Cooperman's pendant, made from antique square-cut nails, takes center stage. In an issue that swirls around the idea of breaking personal and artistic boundaries, we were intrigued and delighted by artists who embraced such an unprestigious material and found new ways to transform it into art.

> We look at boundary breakers … who step beyond existing borders (either institutional or personal) to explore.

Hazel Wheaton

hwheaton@artjewelrymag.com

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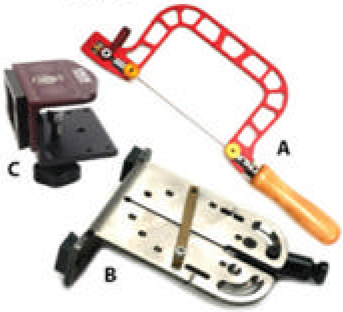

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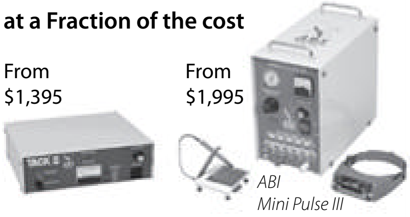
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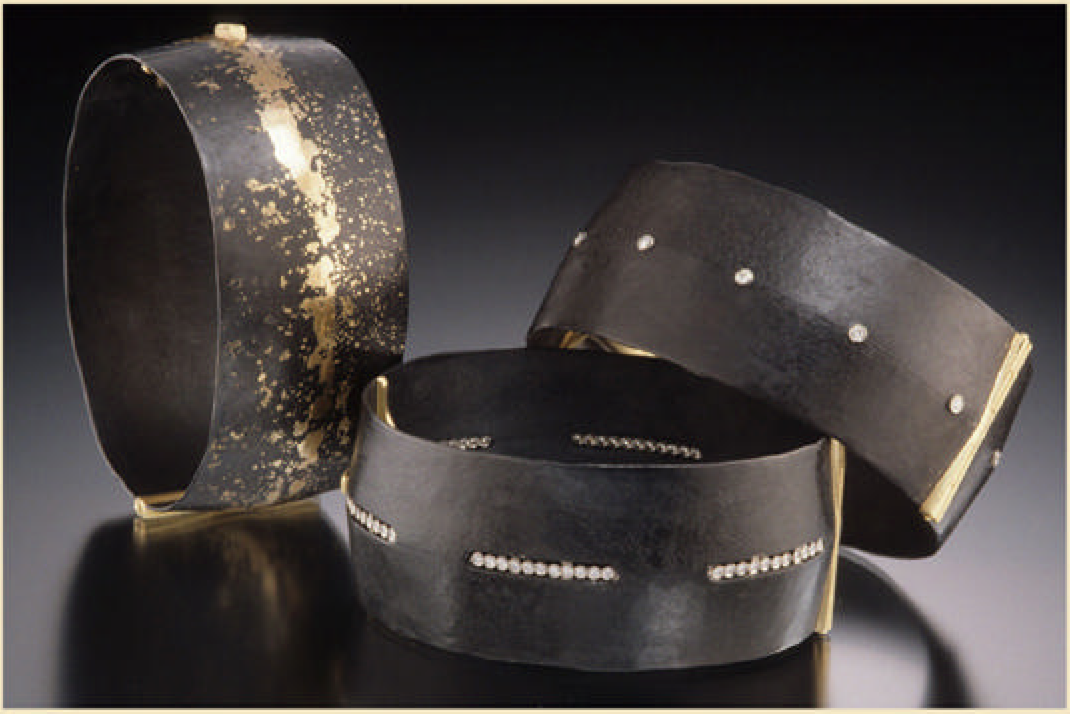
## WORKSHOP

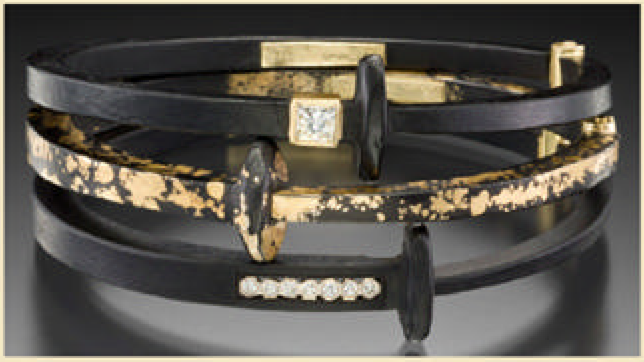


**Hinged Cuff bracelet group (from left to right: *Dust Hinged Cuff, Dot-Dash Hinged Cuff, 12 Stone Hinged Cuff*). Iron, 18k and 22k gold, 18k palladium, diamonds.**

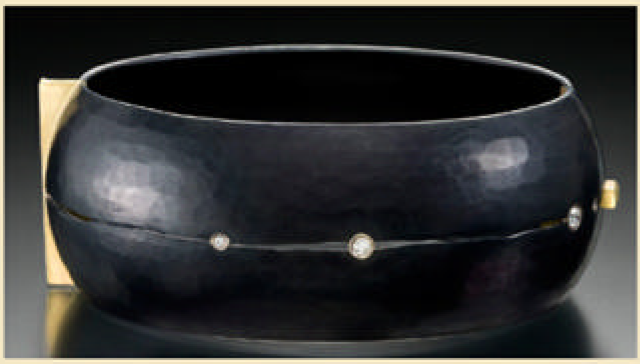
# Hinges Workshop,

### *with Pat Flynn*

***What:*** This course presents a selection of methods for creating hinges, catches, and findings, with special attention given to simplifying these mechanisms for assured, secure results. Demonstrations will be followed by participant work time so that students have the opportunity to make samples using each technique. Various skill levels will be addressed, but basic knowledge of jewelry and metalsmithing techniques are required. Pat Flynn, a goldsmith who lives and works in High Falls, N.Y., is known for his meticulous hinges and latches and elegant pieces that combine blackened steel with 22k and 18k gold, palladium, diamonds, and pearls.
***When:*** May 1–3, 2015
***Where:*** Metalwerx: Waltham, Mass.
***For more information:***
www.metalwerx.com



**Nail Bracelet Stack 2 (from top to bottom: *40 pt. Square Nail Bracelet, Dust Nail Bracelet, Short Stripe Nail Bracelet*). Iron, 18k and 22k gold, 18k palladium, diamonds.**



All photos by Hap Sakwa.

***Fractured Cuff*. Iron, 18k gold, 18k palladium, diamonds.**

# READER FORUM

### Author appreciation

My copy of the January 2015 issue arrived, and the article ["Capture the Glass Ring within Two Classic Weaves," *page 62*] looks terrific! It was truly a pleasure working with you, and your entire team did an amazing job on the photography, layout, and editing. I feel like *Art Jewelry* has held me to a higher standard, and helped me progress. So thank you, also, for not accepting my work the first few times! You made the article one of which I can be proud.

—*Catherine Randolph Hamilton*
*via email*

Capture the Glass Ring within Two Classic Weaves

### A breath of fresh air

I just finished constructing and installing the studio ventilation system designed by Charity Hall ["Ventilate Your Studio for Under $100," July 2014]. The instructions were clear and accurate. I was able to produce a very sturdy frame, and the fan-and-snorkel assembly perform wonderfully. I added window screen tension clips to one side of the frame to make the frame fit snugly. I then slid them into little slots made with heavy-duty staples. Thank you for printing this article. I can now work in the house instead of the back porch this winter!

—*Yolanda Grady*
*via email*

## PRODUCT REVIEW

# ImpressArt Products

ImpressArt has recently released a ton of new products, so hang on tight: I'm going to pack a lot into this review!

**Stamps**

The Juniper (3 mm) and Lollipop (4 mm) letter stamps are casual sans-serif fonts. Both sets come in ImpressArt's latest style of stackable plastic cases to help save precious studio storage space. I was also grateful for their labeled individual slots. This saved my sanity by not having to sing the ABCs every time I had to put away multiple stamps (sometimes it's the little things we appreciate most). Personally, I am more drawn to the Lollipop style, with its slightly taller, narrower letters. And while both sets included some graphic stamps (stars, swirls, etc.), I would have preferred a set of numbers to be included instead of having to purchase the matching set separately.

I likely won't utilize the Greek letter stamp set for stamping messages or text, but those with fraternity ties (or fans of "Monsters University") will be able to use this set to its full potential. College ties aside, I did find that the larger size (6 mm) make these great for decorative stamping. I'm particularly fond of the Delta (Δ) stamp.

The large decorative swirl stamp, sold separately from the ImpressArt Symbols & Design collection, was particularly fun to work with. But there was a slight learning curve, due to the fine outline and larger size (9.5 mm). Once I realized the extra force needed to swing the brass mallet, this stamp quickly became my favorite of the lot.

**Stamp Straight Tape**

I've used both masking tape and blue painter's tape to help keep my letters straight while stamping, but the Stamp Straight Tape is different because it's reminiscent of electrical tape — slightly stretchy and plastic-y. Scissors, or in my case, flush cutters, work well to snip sections off the roll. I was able to use the same piece multiple times, and it never left a residue on the metal. The slightly stretchy composition also helped stabilize some of the dimensional pewter blanks I tested, like the cubes.

STAMP STRAIGHT TAPE

**Metal blanks**

Overall, every stamp was easy to use and worked great on copper and on the ImpressArt "soft" metal blanks I tried — "Alkemé" (a tin-based alloy)

ImpressArt

and pewter. I did discover that the Alkemé blanks needed refinement straight out of the bag. Some of the edges were a little sharp, but a quick once-over with sandpaper and they were good to go. The dimensional pewter cubes and rectangles offer more sides to stamp or texture. While I enjoyed the pewter shapes and the slightly beveled front edges, I was disappointed that the "IA" logo was stamped on the back — because it cut down on reversible options for the pewter blanks.

And just so you know, they're serious about the "soft" label. After practicing on copper, I had to dramatically cut the power I used with the brass mallet when I switched to the ImpressArt blanks, but still got better, deeper impressions than I did on copper. Before I adjusted the force, the hard strikes began to bend the metal. I relied on my usual technique of the rawhide mallet and steel bench block to flatten the blank, which worked, but the rawhide left a slight texture on both styles of soft blanks. I discovered that a paper mallet (reviewed in "Up Front," November 2014, *p. 12*) left the soft surfaces unmarred. Another plus for the soft metal: a great hammer-textured finish was super easy to create and looks great. Since the metal takes an impression so well, it didn't mess up the stamped letters on the front of the blank. Just remember to make sure your steel bench block is free of imperfections, or those will transfer to the metal. Because of the softness of the metal, any stamps overlapping, or even too close to, the edge can slightly alter the original shape of the blank.

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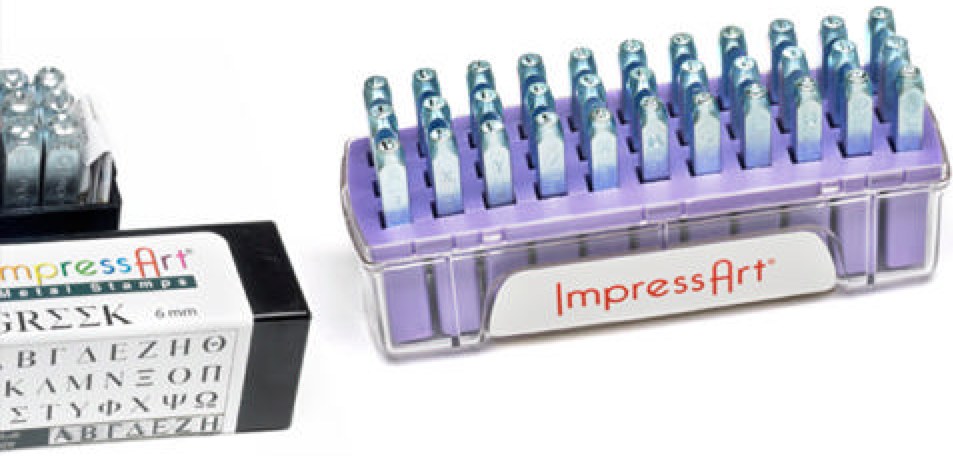
As far as metal content goes, the Alkemé blanks only state that, "Alkemé is a tin-based alloy, and is lead, nickel, and cadmium free." After testing different patinas, I found that Jax Pewter Black (followed by a quick clean up with steel wool) worked great on both types of blanks, giving them a warm, aged feel.
—*Theresa D. Abelew*

### WHERE TO BUY

**Juniper stamp sets:** Uppercase/Lowercase (3 mm) $70; Numbers $25
**Lollipop stamp sets:** Uppercase/Lowercase (4 mm) $70; Numbers $25
**Greek letter stamp set (6 mm):** $65.00
**Swirl stamp (9.5 mm):** $15.00
**Stamp Straight Tape:** $2.50
**Alkemé blanks:** Starting at $6.50
**Pewter blanks:** Starting at $5.00

ImpressArt, www.impressart.com



## SYMPOSIUM

### 28th Annual Santa Fe Symposium

***What:*** Each year, the most innovative minds in jewelry manufacturing and technology meet in Albuquerque, N.M. for the Santa Fe Symposium. Founded on the idea that the jewelry industry benefits by sharing knowledge rather than hoarding techniques, the gathering draws attendees and speakers from around the world. The event is known for bridging competitive divides and fostering a sense of learning, invention, and friendship across the industry; over the past 28 years, it has become the premier educational forum for jewelry manufacturing technology worldwide.
***When:*** May 17–20, 2015
***Where:*** Albuquerque, N.M.
***For more information:***
www.santafesymposium.org

The 28th Santa Fe Symposium

**"Bench Myths" presentation by Ann Cahoon, goldsmith and educator.**

Photo courtesy of Rio Grande.

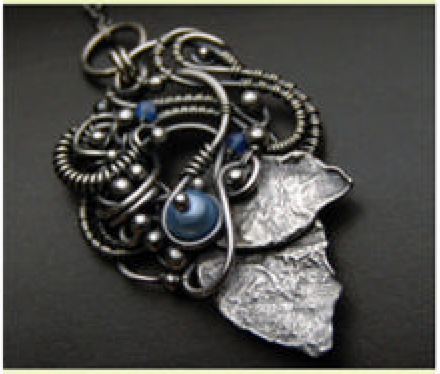
# READER FORUM

ArtJewelry DESIGN CHALLENGE

## November 2014: Monthly Design Challenge Winner

***Artist:*** Iza Malczyk
***Theme:*** Hibernation
***About the piece:*** "It was the beginning of my silver sheet reticulation adventure — I was mesmerized by the frost-like patterns created in this process, as well as the possibility of shaping leaves with fire. I use this motif a lot. The name — *Niquessë* — means 'Frost Patterns' in Elvish."

*—Iza Malczyk*
*www.izamalczyk.com/en*



Check out **www.artjewelrymag.com/designchallenge** for the current challenge theme and how to enter.

## Correction

In the January 2015 issue ("Up Front," *page 12*), we printed an outdated list of teachers for the Revere Academy of Jewelry Arts 2015 Masters Symposium. The teachers for the 2015 schedule are: Michael Boyd, Naohiro Yamada, Jim Binnion and Chris Ploof, Phil Poirier, Andy Cooperman, Jenny Reeves, and Alan Revere. Our sincere apologies to the Revere Academy, the teachers, and any readers who were confused by our error.

## tell us what you think!

*Send your questions, comments, and tips via email to **editor@artjewelrymag.com**. Letters may be edited for clarity and length.*

## CONFERENCE

### SNAG's 44th Annual Conference

***What:*** "Impact: Looking Back, Forging Forward" will explore the ways metalsmithing influences society through the lenses of social impact, heritage, and innovation. This year the conference will be held in Boston, which continues to be a city of reform and idealism where craft, culture, and heritage merge. Join the conversation about the rich traditions of metalwork, its impact on society, and how metalsmithing inspires innovation through modern techniques and materials.
***When:*** May 20–23, 2015
***Where:*** Boston Park Plaza Hotel, Boston, Mass.
***For more information:***
www.snagmetalsmith.org

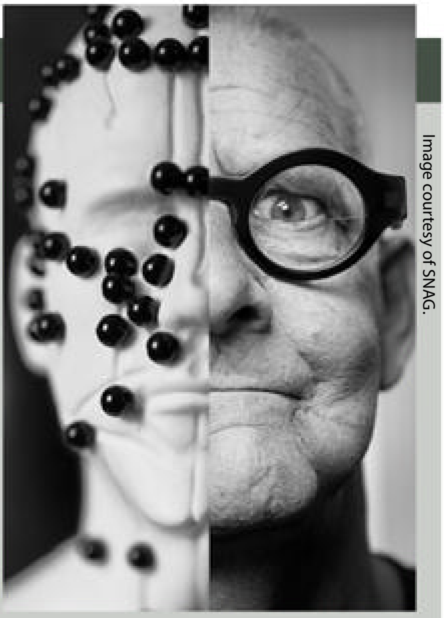


Image courtesy of SNAG.

**Ruudt Peters, featured keynote speaker.**

Check out a first-timer's experience at the 2014 conference in "Navigating the SNAG Circus," *page 30*.

SPOTLIGHT READER TIP

## Unexpected Treasure

"The dental office is a potential treasure trove of hard-to-find precision instruments. At your next appointment, ask if there are any broken hand instruments and/or used burs that are no longer needed. These can be repurposed and redesigned to suit your individual requirements. A scaler may be ground and reshaped to use for metal clay; a hollenback carver is beautiful for applying paste solder, or smoothing wax or metal clay; old burs are wonderful when used in a #30 handpiece; and any hygiene scaler is useful for metal clay or wax carving. A perio probe is wonderful for gently stretching tiny chain links to which to add ends or jump rings. I am a dental assistant and find a lot of our discarded hand instruments invaluable for jewelry making. I have had patients who find them useful for woodcarving, also. Don't be afraid to ask the assistant; she or he would welcome the opportunity to help a patient on a completely different level!"

*—Denny Diamond, CDA II*
*North York, Ontario, Canada*

We're looking for your best studio tips and tricks! We've made it easy to submit your ideas — go to **www.artjewelrymag.com/TipsFromOurReaders** and share your tips with us. We'll choose a new spotlight reader tip for each issue; If your tip is chosen, you'll receive a $100 gift certificate courtesy of our Tip sponsor, Contenti (www.contenti.com)!

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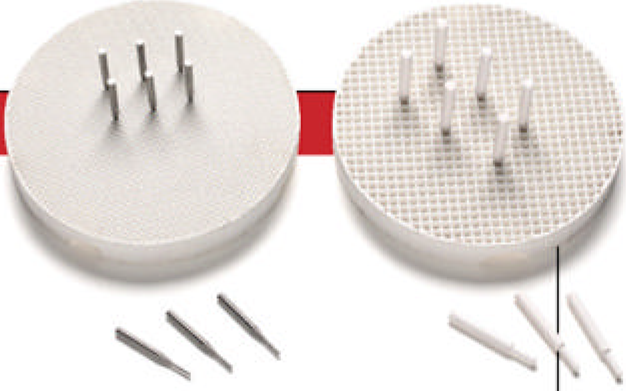
PRODUCT REVIEW

# Mini Honeycomb Soldering Boards



Just as I was getting ready to leave the show floor at the Bead&Button show last year, these little soldering boards caught my eye. Honeycomb boards are nothing new, but I hadn't seen these small, circular boards with pegs before. Setting up your work for soldering so that it's stable and secure can take longer than the soldering process itself, depending on the complexity of the project, so I wondered if these handy little pegs would help. For around $10 each for a set of two, I thought, "Why not give them a shot?" A cross-over from the dental field, these small honeycomb boards and pegs are commonly used as firing trays (saggar trays) for supporting porcelain dental prostheses in a furnace while curing. But, since they are able to withstand high temperatures, they're perfect for high-temperature soldering (or, more accurately, brazing).

The pair with the larger square holes comes with 20 3 mm (⅛-in.)-diameter ceramic pins, and the pair with the smaller holes comes with 20 2 mm (5⁄64-in.)-diameter metal pins (though they're only described as "metal," they're definitely steel). Replacement pins are available — in fact, if you dig around dental supply companies, you'll find a range of sizes). Make sure to place the boards on top of another soldering board or other fireproof surface. As with other honeycomb boards, the holes help dissipate the heat, which helps prevent overheating. What I really enjoyed was using the ceramic and steel pegs to selectively hold elements based on whether I needed them to retain heat (ceramic) or act as a heat sink (steel). Unfortunately, because the pegs and holes in the boards are different sizes, they're not interchangeable (you can only use one type of peg at a time), but I was able to choose the best board/peg combination for the task. For example, I soldered a ½-in. (13 mm) length of thin-walled sterling silver tubing to a long piece of 12-gauge (2.1 mm) square copper wire with hard solder. Without good torch control, it would be quite easy to melt the silver tube before both pieces reached soldering temperature. Because steel is a heat sink, I used the honeycomb set with the steel pegs to secure the tubing, and then used a pair of cross-locking tweezers in a third hand to support the copper wire vertically on the tube. Soldering was a breeze, and the steel pins did their job.

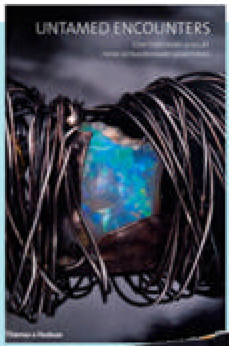
It takes a little fiddling to get the pieces set up securely since the holes in the boards are in a grid, and your piece may not fit perfectly within that grid. However, by adjusting the placement of your piece on the board, and fussing with the peg placement and number of pegs you use, you should have no trouble setting up most pieces. I tested both sets, and am happy to say that both the ceramic and steel pegs held up to the direct heat from the torch. The pegs are considered a consumable, so they won't last indefinitely, but with the number included, you'll be set for a while. —*Annie Pennington*

**WHERE TO BUY**

**Mini honeycomb soldering boards:**
**Large-hole set of 2** with 20 ceramic pins: $9.95
**Small-hole set of 2** with 20 steel pins: $10.95

Jewelrytools.com, www.jewelrytools.com

Book review



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**Thames & Hudson, 2014: $95.00**
**ISBN 978-0-500-97063-8**

During her world travels, jewelry lover Mimi Lipton gathered a collection of uncut stones, corals, pearls, antique pieces of carved amber, ivory, and bone. Within a span of six years, she collaborated with seven different jewelry artists around the globe to create over 80 jewelry pieces using treasures from her collection. This oversized book (9 x 13 in. [22.9 x 33.0 cm]) offers little narration other than a discussion of a few pieces in the introduction and a brief index listing each piece's materials, dimensions, and artist. With no distracting text, it's easy to get lost in the heart of this book — the lush, full-page photography of Lipton's jewelry. With 200+ drool-worthy pages, it's impossible to pick a favorite piece (or even the top ten) from this treasure trove of jewelry inspiration. —*Theresa D. Abelew*

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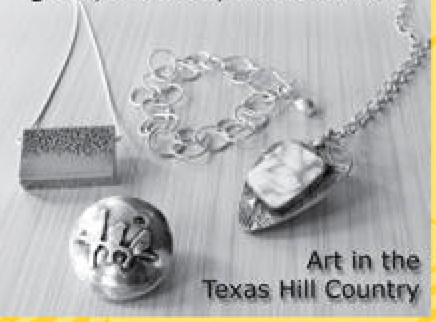

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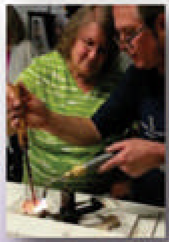

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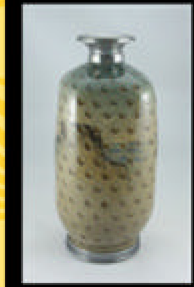

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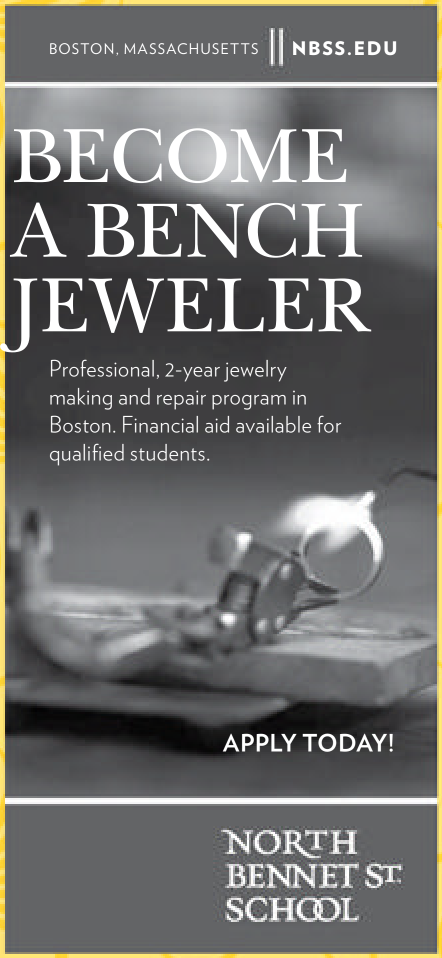
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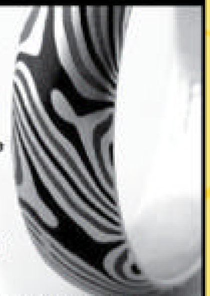
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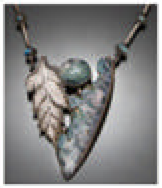
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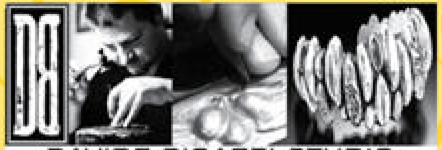

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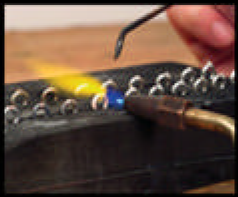

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# Coming Clean About Disclosures

**by Marlene Richey**

Modern jewelry makers have an astonishing variety of materials at their disposal. Part of the design process is choosing from materials sourced from all over the world. But often, artists have no idea where these materials come from; they may not even be exactly sure what the materials *are*. There's a growing movement to embrace materials for their aesthetic appeal rather than for perceived traditional monetary value. But, while a buyer may be encouraged to select an item just because it's beautiful, the maker must know more about it. You have a duty to know, because you have a responsibility to disclose.

## Storytelling

Disclosure is, simply put, transparency. If you sell your work, you should be educated about your materials so you can, in turn, inform the customer. There are many reasons for this transparency, including legal and marketing reasons.

On the marketing front, independent jewelry makers have something that big-chain retailers don't. Your hands created the piece, and you have a story to tell about its life. But, you want to be able to tell its *entire* story. Knowing about the raw materials and their origins is part of your narrative. "It might seem like a lot of trouble to go to, learning about the metals and gemstones we use in our jewelry," says jewelry designer and maker Conni Mainne. "It *is* a lot of trouble, but if we don't have enough passion to know more about our materials, that comes through when we're selling our jewelry. Whether it's to a retail store or gallery, or a personal customer — that confidence you have about your materials reads as passion."

Total transparency is also key to being considered trustworthy by your customers. Unfortunately, a long list of incidents have shown that jewelers can sometimes look less than reliable or downright shady. How many stories have hit the media that have raised your defensive hackles on behalf of honest jewelers everywhere? How many times have you found yourself muttering the phrase, "A few bad eggs …"

Besides the obvious controversies that surround terms such as "conflict free," "blood diamonds," and being "green," you want to instill faith and trust in your client-base, which means being knowledgable about the materials that go into a piece, even if you work with paper and yarn.

Additionally, one of the beauties of jewelry is its status as an heirloom; a piece made from metal and stone may live on for generations after you. When you accurately identify and mark the materials your work contains, you serve not just your immediate buyer, but the secondary market as well. When the piece is resold or becomes a collector's item, the new owner will want to know details about the piece. Again, it's part of the story.

## Legalities and allergies

It's not just that you benefit from being seen as transparent. As I discussed in a previous article on marking metal content ["What You Need to Know about Trademarks and Quality Marks," July 2011], it is your legal responsibility to have a registered trademark and to stamp the metal content on your jewelry.

The risk of metal allergies is another reason that you should disclose all metals used in a piece to potential buyers. Some people claim to be allergic to gold or silver, but this is rarely the case; the usual culprit is the secondary metals used in the alloys. The most common metal people have allergies to is nickel. Nickel can be particularly irritating, because if the nickel gets into water it forms salts, which cause itching. This can be brought on by soaps, lotions, perfumes, or simply sweat. So, if you are using base metals, low-karat golds, or sterling silver, find out what the alloys are and avoid anything with nickel — or be ready to tell your customers that the alloys you use *do* contain nickel.

Speaking of base metals, when purchasing findings, be a wise customer and ask the supplier if the findings are plated and if so, what the base metal is. And speaking of plating, if you're having a piece plated, consider using vermeil rather than plating, for not much more money. That's a value you can sell to your customers, as vermeil is three times thicker than plating, so it will hold up longer.

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All gemstones have wonderful and interesting stories. This is the time you get to wow your customer with the origins, powers, make-up, history, cuts, and coloring of the gemstones you choose. It's magic, and it's romantic.

## Gemstones

Now for the fun part of disclosures — gemstones. All gemstones have wonderful and interesting stories. This is the time you get to wow your customer with the origins, powers, make-up, history, cuts, and coloring of the gemstones you choose. It’s magic, and it’s romantic. However, the other side of the gemstone story is that you should always work with a reputable gem dealer. Get to know the gemstones you’re passionate about, and establish a trusting relationship with an honest gemstone dealer.

“There are so many more unusual gemstones on the market,” says Sia Maravelias, director of the Quadrum Gallery in Chestnut Hill, Mass. “Many have been either heat-treated or dyed, and it’s important to be able to let a customer know if a stone has been in some way treated or if it is natural.” Other gemstones are synthetic. There’s nothing wrong with synthetic stones — some are quite valuable. But you don’t want to find out that a stone you thought was natural is really an imitation. And that goes for the customer, too. If the gemstone they love turns out to be glass with a fancy marketing name (I’m looking at you, “cherry quartz”), they’re going to be upset with you when they find out — because either you didn’t tell them, or you didn’t know. And if you didn’t know, you should have.

Says Maravelias, “It’s really important to me that we always work with designers who trust their own sources in terms of where their gemstones are from and what they are, and that they are hopefully ethically mined. The only way for me to know what we are selling is based solely on the information that each artist provides to us. We deal with highly educated clients who do their homework and care about this information.”

Laurie Watt, owner of the highly respected Mayer & Watt gemstone dealers, based in Maysville, Ky., says, “I have always provided my customers the best, most accurate information about the background and history of any given stone they purchase. I try my best to be as clear and disclosed as is possible. I ask the miner, cutters, and vendors we deal with the hard questions. If we are unsure, we spot-test stones with a reliable gem lab before selling a product.”

> Knowing your jewelry inside and out is important both to you and the potential customer. Yes, it’s a responsibility, but it’s also a prime opportunity.

However, it’s important to recognize the limitations of even the most well-documented supply chain. Says Watt, “We have learned that gemology can only detect an informed guess for origin or even treatments. All certifications indicate that they are only ‘probable indications of …’, or [that the] ‘determinations presented here are subject to the limitations of science.’”

That doesn’t mean you don’t have to bother, but it *does* mean that when discussing issues such as ethical sourcing with your customers, don’t make claims beyond your knowledge. Again, transparency is key to trustworthiness. Don’t claim absolutes. And if the price seems too good to be true, it probably is.

“I always tell people I only buy from reputable companies and individuals with a history of honesty,” says Watt. “I get the best prices I possibly can, but if it’s too cheap, beware. You cannot ever know the exact history of each stone, only the integrity of who you are buying from.”

## Record keeping

Finally, if you make one-of-a-kind pieces or limited editions, keep accurate records of the piece number, the materials and their cost, when it was made, any exhibition record, and when and to whom and for how much it was sold. This will be an invaluable asset when you have someone come back to you 10 years later asking for more information about a piece. It also helps you keep track of your design history and how you were pricing pieces at a specific time. If you create reproducible collections of work, then it is just as important to keep records of the exact findings, chains, gemstones, and metals so you can reproduce it accurately time and time again.

All this information has additional value when you are asked to provide a certificate of purchase (a document stating the basic information about a specific piece and the original sale price), which can be used for insurance coverage, as a record for the owner, and for appraisals, if the need arises. This is the documented history and story of the piece, and it should be accurate. Imagine the fuss if a stolen gem turns out to have been claimed at a higher value for insurance? Who’s going to be on the hook for insurance fraud? That’s definitely the worst-case scenario, but it’s worth thinking about.

Knowing your jewelry inside and out is important both to you and the potential customer. Yes, it’s a responsibility, but it’s also a prime opportunity. Use your research and knowledge to give your customer a wonderful glimpse into the whole story of your work. You will be able to market your piece with more confidence and professionalism. “Having stories to tell about the stones and metals helps the selling conversation roll in a positive direction,” says Mainne. “These days, we need more than just a product to sell. Those who can romance their product sell more effectively. We do want to sell, after all, right?”

*In her more than 30 years in the jewelry business, Marlene Richey has run a wholesale business and a retail gallery. She can be reached by email at marlenerichey@gmail.com.*

# Non-tool Studio Must-haves

by Christopher C. Darway

There are certain "must-haves" in life. For a woman, it may be a little black dress. For a man: any car named after a snake. An architect: a bow tie and round-frame glasses. For everyone else: bottled water. We know what tools to have on hand in a studio, but there are also non-tool items that come under the banner of "must have."

## Baking soda

Nice!
PURE
BAKING SODA

This chemical compound, sodium hydrogen carbonate (also called sodium bicarbonate), is one of those wonder products that delivers what it claims. In the jeweler's studio, it's most commonly used for neutralizing spent pickle.

### Neutralizing pickle

First, place spent pickle into a large, plastic container. Make sure you do this in a well-ventilated area (ideally outside.) Then, add water to dilute it, and a little bit of baking soda. Be prepared for a violent reaction! Keep adding water and baking soda until the foaming stops. At this point, it is neutralized and could, in theory, be poured down the drain. However, this isn't the best way to go. There's copper in the solution that will make its way to your local waste-treatment plant. So, don't do that. Let the water evaporate, and dispose of the remaining pickle salt at your local hazardous-waste-disposal site.

If you want to avoid that mess altogether, try this instead. Place a bundle of steel wool in the spent pickle. The copper suspended in the solution will plate onto the steel wool. Remove the plated steel wool, and set it aside to dry. You can recycle the copper at a later date. Remove all of the steel wool particles from the pickle to prevent it from cold-plating other metals. To make sure you get all of it out, drag a magnet through the pickle to pick up any errant pieces of iron. Once the steel is removed, the plating action ceases. The pickle can now be used again instead of being discarded. (I'm not sure how many times this can be done, as I've just started using this process.)

### Remove tarnish on silver

A combination of table salt and baking soda mixed with water can remove tarnish on silver. There's no exact mix ratio, but you need approximately 1 cup (8 oz.) of boiling water, 1 tablespoon (15 mL) of baking soda, 1 tablespoon (15 mL) of salt, and ½ cup (4 oz.) of white vinegar. Place your tarnished silver jewelry in an aluminum tray or a glass container lined with aluminum foil, and then pour this mixture in. The tarnish will travel from the silver and adhere to the aluminum. This is the same process you see on late-night TV commercials.

### Bead blaster

Baking soda can be used in a bead/sand blaster to remove light rust and paint from metal surfaces. I don't know of any jewelers using this, but auto restoration shops have been using soda blasters for years. Harbor Freight sells soda-blaster equipment and baking soda in bulk. It's coarser and specially formulated for blasters.

### Additional uses

- Use it as a substitute for pumice powder for cleaning metal.
- Use it to extinguish oil fires.
- Baking soda and cyanoacrylate adhesive (super glue) can be used to fill or repair gaps in surfaces. Put baking soda in the area to be filled, and then add the super glue. It hardens almost instantly. Think of Ice-Nine in Kurt Vonnegut's novel *Cat's Cradle*.

## Vinegar

Nice!
VINEGAR

Vinegar has been around since almost the beginning of time. The earliest solutions for cleaning metal were made of alum dissolved in water. Alum is also used to pickle cucumbers. Hence the name "pickle."

### Alternative pickle

Instead of sodium bisulfate (Sparex), you can use straight vinegar or citric acid powder in a pickle pot. It works well, but it's slower.

### Patinas

Vinegar is an ingredient for several patinas on copper. Paint or dab vinegar on clean copper, and then sprinkle coarse salt over it. Let it dry. The patina must be sealed with a lacquer or acrylic spray.

### Additional uses

- Diluted vinegar cleans glass (it works great on the inside of a microwave!)
- Not feeling well? Apple cider vinegar has medicinal properties. Dr. D. C. Jarvis, author of *Folk Medicine* (which has somewhat of a cult following), believed in the curative properties of apple cider vinegar, honey, and lemon. I have used this mixture for treating a sore throat. I don't think I'd abide by his regimen of several teaspoons of vinegar every day, though. He died at the age of 62 from chronic kidney infection and a few other maladies. His hobbies included playing the cello, and making jewelry, which I find interesting.

## Hydrogen peroxide

HYDROGEN PEROXIDE

Whether you're fooling around building a rocket engine or just cleaning a finger cut, this is another one of those must-have chemicals. It's a strong oxidizer and is used as a bleaching agent and disinfectant.

### Super pickle

Super pickle is a mixture of sodium bisulfate and hydrogen peroxide. It is great for removing the red oxide that develops on brass or bronze alloys after heating. I've also been using it as an etchant on copper. Mix 16 fl. oz. (474 g) of hydrogen peroxide with 2 oz. (65 g) of sodium bisulfate to make one formula of super pickle. I use it cold. You can find more variants of this pickle by getting a copy of Bill Seeley's paper on hydrogen-peroxide pickles from Reactive Metals Studio, Inc. Good stuff.

## Beeswax

Beeswax is an all-around lubricant for saw blades, drill bits, and burs, but it's also good for a few other things around the studio.

### Sealant

I make my own wax sealant by dissolving beeswax in naphtha. Naphtha is a paint thinner/solvent that can be found in the paint department of any hardware store. (It's the main ingredient in lighter fluid, so you can also use that.) Naphtha/lighter fluid is flammable, so take care when mixing it with the wax. Beeswax pastilles can be found in the candle-making section of craft stores. Use white beeswax. Fill a small glass jar about half-way with naphtha, and then add the wax pellets. The wax will dissolve in short order, and then can be used immediately. Depending on how much wax you add, the consistency can be water-thin to paste-like. I use it on metal as a sealant. Brush it onto your piece, let it air dry, and then buff it with a soft cloth. It's especially nice on oxidized/patinated sterling silver. A thinned-out mixture can be painted on steel tools to prevent rust.

### Stone setting

Warm a pea-sized bit of beeswax in your fingers, and form it into a cone for a wonderful tool for picking up small stones. A little bit of beeswax will also hold a stone in place prior to setting it.

## Ammonia

Nice!
CLEAR
AMMONIA

Ammonia is a great glass cleaner; I mostly use it as a patina on bronze and copper.

### Patina

You can make a disposable fuming chamber using a crumpled paper towel soaked in ammonia and a large zip-top freezer bag (*below*). Once your project is finished and thoroughly clean (no oils or oxides), place it in the bag with the paper towel. Just before closing the bag, blow air into the bag like a balloon (do not inhale!). Let it sit like this for several hours, overnight for best results.

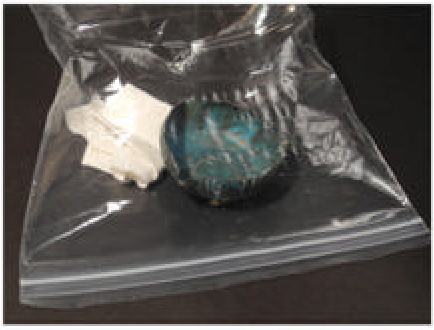

Photo by Christopher C. Darway.

### Additional use

- Ammonia will darken unsealed wood.

Everyone will have their own list of must-have items, regardless of what type of work they do — this is simply my list, and a good reminder of what you should have on hand in your studio. I once saw a short documentary on TV about the Pony Express. Their riders' "must-haves" were a Bible, a six-shooter, a canteen, and the mail pouch. The canteen and six-shooter I understand. I'm not so sure about the Bible — I don't think there was much opportunity to do any reading while riding. Perhaps management had concerns regarding the moral character or integrity of the riders.

*Christopher C. Darway can be reached via email at cdarway@outlook.com.*

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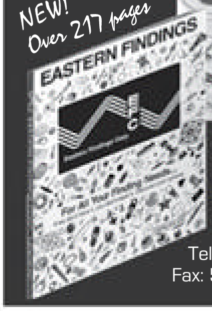

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# Applying Designs to Metal

**by Michael David Sturlin**

One of the challenges all metalworkers face is getting their initial design or pattern onto their metal to begin with. This is one of the most important aspects of any project, because how well the design is transferred has a lot to do with how well each step afterward will follow. Without reliable and accurate marks, you may find yourself halfway through an intricate piercing design with no pattern left to follow. But once you have marked the metal, getting the tools to go where you want them to go just takes time and practice. Let's look at a variety of ways to get your design in place.

## Metal preparation

In all applications, the first step I take is "frosting" the metal — giving the surface a non-directional satin finish by gently rubbing it in a circular motion with an abrasive pad **[1]**. Pattern transfer or registration marks will show up much more clearly against the frosted background. Once you've prepared your metal, there are several ways to transfer your design.

## Transfer options

### Draw it

I like to take a freehand approach whenever I can. This works especially well with organic and abstract designs, and is also handy for working out subdivisions for geometric or symmetrical designs.

Draw reference marks on the metal with an ordinary mechanical pencil, and position and reposition your design as needed until you get it just right. If you need to adjust or remove the marks and start over, don't use an eraser; just wipe away the marks with a moistened finger.

Once you've drawn the pattern as desired, use a polished, pointed scribe or a fine-tip burnisher to trace through all the lines, leaving a scratch. The scratch will be bright and distinct — easily visible against the frosted background.

Regardless of technique, this scratch is always my final registration mark. A scratched line is narrow and precise, it doesn't come off, and it shows up even more clearly when under a light.

### Mark it with tools

For designs that are geometric or symmetrical, you can lay out your design directly on the metal with tools: dividers, a ruler, machinist's square, and scribe. This is my most frequently used approach.

Keep in mind that an abrasive pad also works as a metalsmith's eraser; if the first marks don't work out, just re-frost the surface and start again.

### Stick it

I don't use this approach myself, but many jewelry makers do. Either print out your design or draw it on paper, then glue it on the metal with rubber cement or other adhesive. You can also print your design on an adhesive-backed label and stick it on the metal.

The benefit of this method is that the design usually won't slip while you saw, cut, drill, or pierce. The downside is that if the design *does* come off, there aren't any registration marks left on the surface.

To counteract this, use a sharp tool (craft knife or scalpel) to score through the paper or label, leaving scratch registration lines on the metal. Peel away the label to reveal the clearly marked design.

### Stitch it

Stitching is a tailoring technique for transferring a design onto fabric from a paper pattern; it's easily adapted to metal. Tape the paper to the metal with the pattern face-up. Use a sharp scribe or needle to make prick marks through the paper 5 mm (13⁄16 in.) apart along the pattern lines. Remove the paper, and use the scribe to trace through the prick marks to connect the dots. This technique works for simple designs but is not always practical for intricate patterns.

### Carbon copy

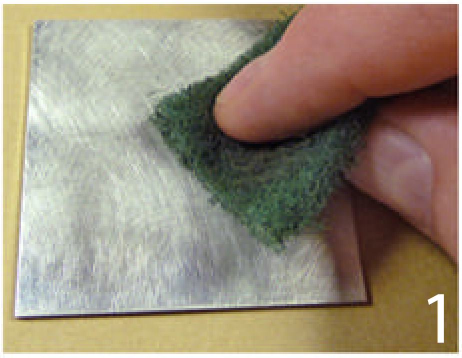
Place the paper with the design face-up on the metal. Fold one edge of the paper around the back of the metal and tape it in place. Slide a piece of carbon paper under the paper, with the carbon side against the metal **[2]**. Lay the paper back down over the carbon paper and secure the bottom edge with tape. Trace the design with a ball-point pen **[3]**, and then carefully remove the paper and carbon paper. The design appears as a faint line on the metal.

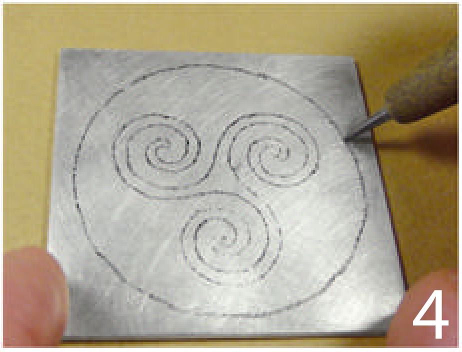
The faint lines of the carbon transfer are easily removed, so again, trace over them with a polished scribe **[4]**. This will ensure that the design is left intact and easy to see **[5]**.

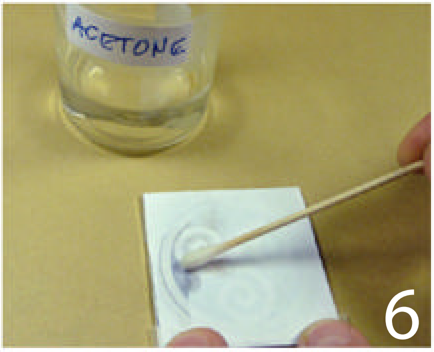
In a pinch, you can make your own carbon paper by rubbing a heavy coat of graphite (I use a pencil) onto a piece of paper. Place the paper graphite-side down against the metal for transfer, and use firm pressure with the ball-point pen to trace your design.

## mark twice, cut twice

A common approach when making matching items, like a pair of earrings, is to glue two pieces of metal together, apply the design, and then pierce both layers of metal as a single sheet. This might appear to have the advantage of expediency, but let me suggest an alternative: Lay out the earrings side-by-side on a single piece of metal and pierce the same pattern twice. This reinforces the notion that you can easily make duplicates, and is a far better skill-development exercise.







### Chemical transfer

There is a simple method for transferring complex and elaborate artwork to metal using acetone and a cotton swab. You need to print your design as toner output with a photocopier or laser printer — inkjet prints won't work for this process.

If your design has specific orientation (that is, if it's a letter, number, symbol, etc.), print it in reverse for a mirror image. Use only black-and-white artwork (no gradient or gray scale), and make the ink as black and saturated as possible.

Place the print face-down on the metal and secure it with tape. Dip the tip of a good-quality cotton swab in acetone, and then rub the swab over the paper **[6]**. (I like the cosmetic swabs with wooden sticks and tightly wound cotton; a typical ear-bud swab is too loose and absorbs too much acetone.) Use firm pressure with the swab to burnish over the design.

As the acetone soaks through the paper, it transfers the ink onto the metal. You will see the paper momentarily wet from the acetone, which evaporates and dries nearly instantly. Afterward, peel the paper away — it should peel easily, leaving a nearly permanent design on the metal.

This technique might take of practice to get the results just right, because there are some variables in play: the thickness and type of paper, the amount of acetone, and the amount of pressure you use. Too much acetone will make the ink bleed and blur the design, not enough will make too faint of an image. Try this method on a sample first to work out the proper application.

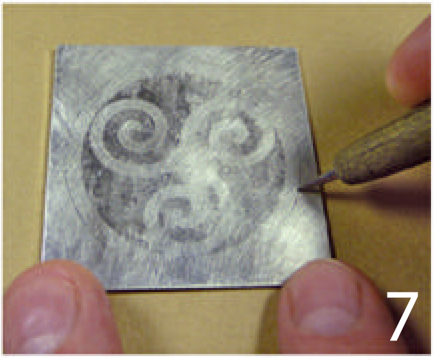
You can leave the black ink as your pattern to follow in piercing or sawing. Personally, I don't like a dark or obscured surface on my metal as I work, so I scribe through the ink, tracing all of the lines as scratches on the metal **[7]**, and then remove the ink with acetone. I find it much easier to follow a scratched line than a black and white image.

In complex designs, you can differentiate the areas of positive and negative space by using a scribe to cross-hatch or texture the areas to pierce away.

## Finishing up

Any project that requires precise work — piercing, carving, chasing, etc. — will necessitate reliable registration marks on the metal. Having a pattern or design that is well described from the outset is essential to reaching a good conclusion. The time spent in layout and transfer will pay its way forward many times over.

The marks delineate what is being removed and, equally important, what is remaining. Keep in mind the mark is an outline or boundary, and it should still be visible once the interior area has been removed. Erasing the registration marks should be one of the very last steps. I do this by filing, sanding, polishing, burnishing, or texturing.



## Keep a back up

Regardless of the approach you take to get your design onto the metal, it is always a good idea to have a back-up copy of the artwork in reserve. Digital designs for print-outs already exist as a saved file. If you're using hand-drawn artwork, scan, photocopy, or photograph the design it so that you can save it for future reference.

*Michael David Sturlin is an award-winning goldsmith, jewelry artist, and educator. Contact him via email at michaelsturlinstudio@cox.net.*

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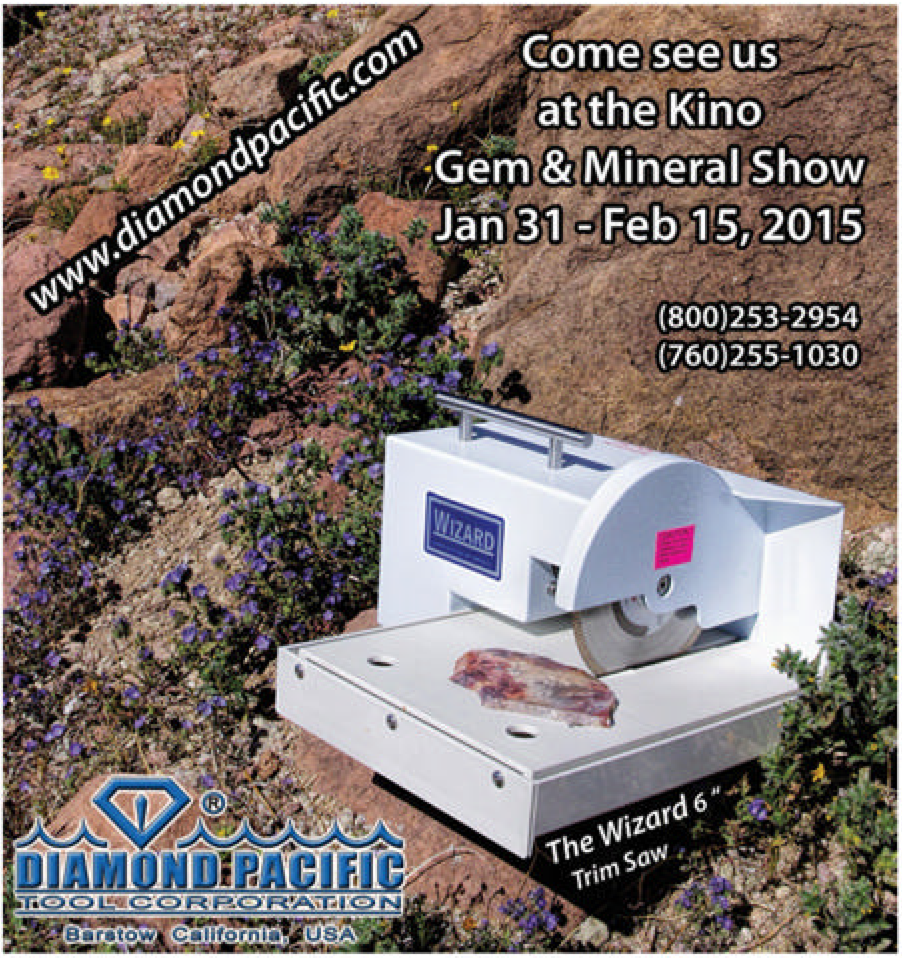

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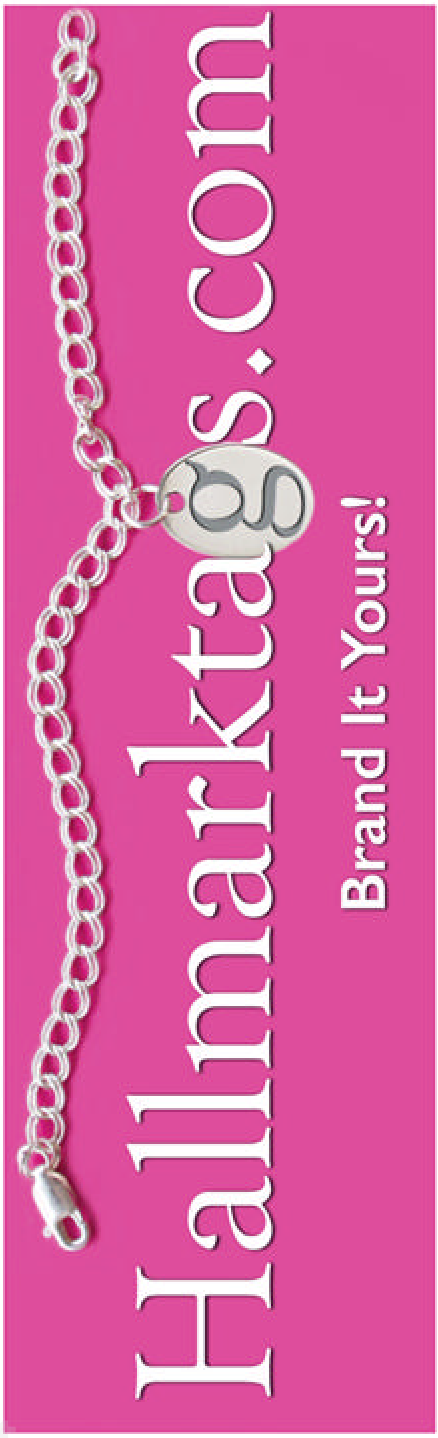

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Spotlight on Education

# NAVIGATING THE SNAG Circus

*How a first-timer on a budget learned to make connections, get involved, and not collapse with exhaustion at the Society of North American Goldsmith's annual conference.*

**by Casey Sheppard**

**I've been on the jewelry scene** for a good seven years now (maybe a bit longer), but only taking things seriously for, let's say, five years. That's nothing in this field. There are people who have been here for over 50 years — I'm a *zygote* compared to some of the legends in jewelry and metalsmithing. But even though I may be a speck in this world, it's my world too, and I'm diving in! So how does someone so new get involved? Where can I pick the minds of the makers I've been following for years? Meet newbies like myself? Get my name out into this community? Luckily, for those of us able to schedule only one roadtrip this year, all those questions are answered by one event — the SNAG conference!

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Tons of lectures relating to the field of jewelry and metalsmithing

Photo by Jim Bové.

Artist demonstrations

Photo by Casey Sheppard.

Pop-up exhibitons in hotel rooms

Photo by Jim Bové.

Each year (starting in 2015, it will be every two years), the Society of North American Goldsmiths (SNAG) hosts a conference in a different city where people from all parts of the jewelry/metalsmithing world come together. There are lectures, demos, dinners, art crawls, pop-up exhibitions, and more. When I found out that the 2014 conference would be in Minneapolis, I knew I had to go. I'm from the Midwest originally, and over the past two years, I've visited the city for jewelry shows, where I was welcomed with open arms and have become part of their jewelry community.

The theme of the 43rd annual SNAG conference, "From Grains to Gold," explored the shift from a global market to refocusing on local communities. This shift changes the relationship between makers, materials, techniques, processes, and what we call "handmade" today. The Midwest prides itself on local and community, so what better place for this particular conference than Minneapolis?

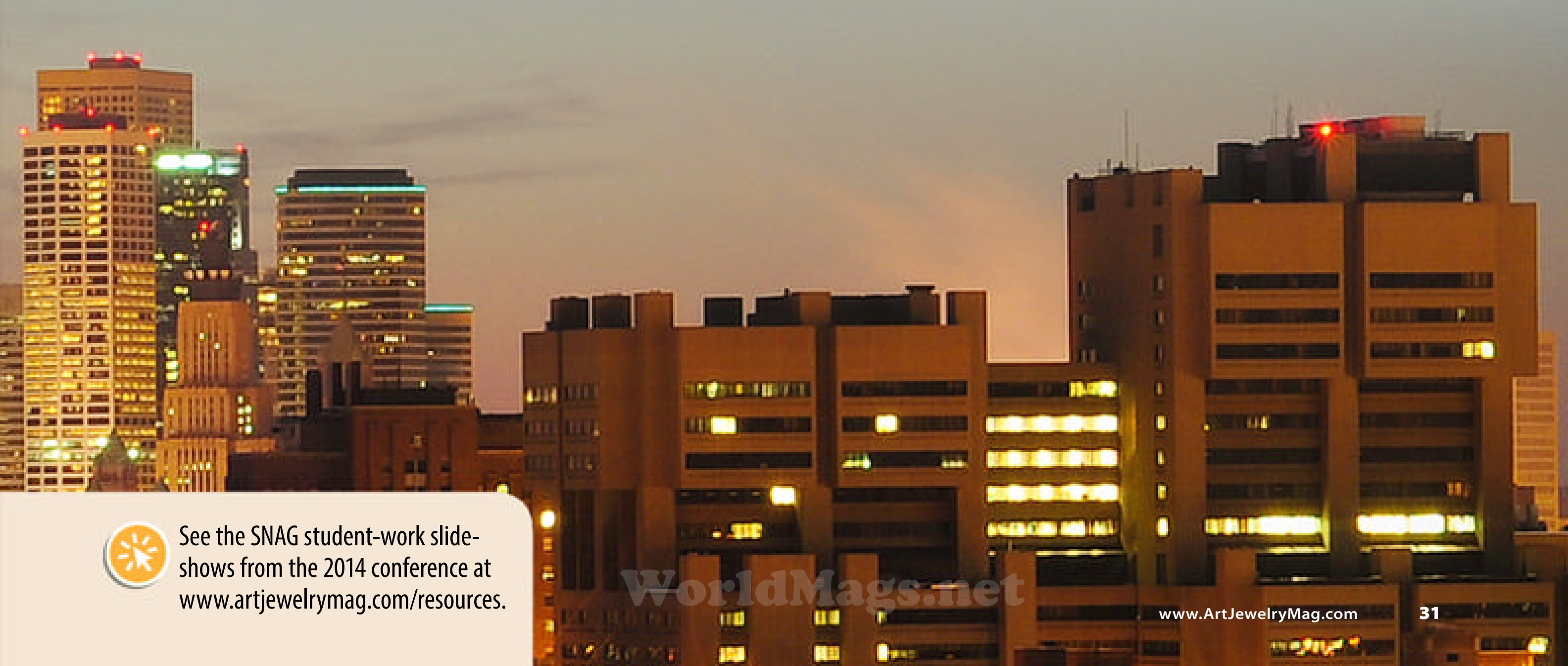
Co-chairs organize and plan each conference, and the three hard-working ladies co-chairing the 2014 conference were Dominique Bereiter, Emily Johnson, and Britta Kauppila. I remember receiving an email from Emily about the conference three years ago … for three years they worked on this! Nice job!

When I first went online to check it out, I was overwhelmed. There is a lot of information to take in. Time for a deep breath and baby steps. A friend who had attended a previous conference gave me some things to think about and ways I could become involved. Now, I hope I can do the same for you.

## Cost-saving tips

### Work-exchange program

To help save money on the cost of the conference (it adds up, but it is worth every penny), there is a fantastic opportunity for students and new professionals to take part in: the work-exchange program. Sign up is first-come, first-served. You work (volunteer) six hours for a 40 percent reimbursement of your registration fee. Not only are you saving money, but this also helps you meet new people. When I didn't know anyone and heard someone call out "Hey, Casey!" it made me feel like one of the cool kids! Work may include booth sitting, registration, raffle table, and more.



See the SNAG student-work slideshows from the 2014 conference at www.artjewelrymag.com/resources.

> The key to conquering intimidation is to walk right up to it and introduce yourself.

I signed up to work the early morning registration table. Yes, this meant I had to get up super early and be there at 7:30 am, but I had a hidden agenda. Registration is where everyone goes to get their name badge and conference goody bag (full of metalsmithing-related flyers, coupons, post cards, and more), so I hoped to put faces with some of the names I had seen over the years. I wanted to work the first day, but since that was my travel day, I didn't think it was wise, in case my flight was delayed. But lots of people traveled the night before or early morning, so the second day was just as great. My secret agenda paid off!

### Conference-hotel block rates

Because it's part of the conference, the host hotel offers a reduced room rate. I recommend that you stay at the host hotel for the conference. You may say to yourself that you don't want to do all the things on the schedule, but once you're in this crazy world, you will. You become a sponge, longing for more information to take in. So, staying on site is worth the added cost.

If you're not staying in the hotel, allow enough time to get to and from the event. And remember, the upside of the conference being held at a hotel is that you can have the concierge hold your bags on the day of travel. Super convenient.

### Room sharing

If you know of a friend who's going to the conference, share a room with them. If not, you can sign up for room sharing through the SNAG website. This is another great way to meet someone new and cut costs. Plus, there's a survey to help match up compatible people.

## The conference

Now, let's get to the goods: The conference itself. It can be hard being the new kid on the block, especially when you are in a room of people who know each other and you know no one. But hang tough! We've all been there.

### Getting started

The first night started off with a nice appetizer and cocktail hour. After a day of travel from Los Angeles to the twin cities, I was in need of a sweater and a glass of wine (in that order). It was nice to walk around and see everyone, but it also kicked off the intimidation! (Breathe.)

The key to conquering intimidation is to walk right up to it and introduce yourself. "Hi, I'm Casey. Casey from Lost Angeles." Yes, my name tag said "*Lost* Angeles." How did they know I felt completely lost? I took a step back, laughed at myself, and began to relax. This was going to be a fun week, even if I *was* lost.

### Panel discussion and pin swap

After cocktail hour, there was the conference kick-off and a panel discussion. It was a great way to switch gears and turn the focus onto what we all have in common: jewelry/metalsmithing.

After that was the annual pin swap and after-party. I had a heads-up about this, so I made about 25 simple pins that showed my personality, and attached them to my business cards. Anyone can participate in

*Lifetime Achievement Award recipient, Bob Ebendorf, accepts his award.*

## other events
### at the conference

I've left a lot out, so here's a short recap of some of the other events that took place during the conference:

- Lifetime Achievement Award and conference dedication to Robert Ebendorf (one of those legends I was talking about)
- Face-to-face sessions where you actually sit down at a round-table event with main-stage presenters and talk about topics relevant to the jewelry/metalsmithing world
- Vendor room (filled with tools you could look at and test before purchasing, books to flip through and order, and all sorts of other goodies to drive a metalsmith into bliss)
- Annual juried student exhibitions
- Professional Development seminar
- SNAG elections and voting
- Lunchtime walking tours
- Education Resource Room
- Raffles
- Silent auction
- Membership meeting
- Presentations of student work
- Pop-up exhibitions

*Pop-up shows transform hotel rooms into exhibition spaces.*

Photos by Jim Bové.

WorldMags

the swap and most people bring between five and 50 pins to trade (25 is a good, manageable number for a first-timer, or anyone, really). I wasn't sure what to expect, but approaching people and asking if they wanted to exchange pins was a really great way to meet people and let the intimidation dissolve. It felt like I was becoming part of some secret club. I saw pins on peoples' name tags throughout the week. This community was starting to take form, and I was there to see it.

### Portfolio review

My insider gave me another tip: Sign up for the portfolio review, which is for emerging artists and students. Gallery representatives, curators, artists, entrepreneurs, and other professionals in the field meet with you one-on-one to give guidance and offer advice to the up and coming. Initially, I wasn't sure if this was for me. I'm in the midst of changing my business, and I felt that I didn't have enough information to give the reviewers. But, I signed up anyway. This was another chance for others to see my work and for me to get feedback.

When the list of reviewers came out, I looked them all up online and chose two that I felt were the best fit for me. I wanted someone who had different work, was heading in the same type of direction as me, and if possible, someone who writes. As luck had it, I ended up having both of my picks look at my portfolio: Michael Dale Bernard, and the entrepreneurial duo of Amy Weiks and Gabriel Craig. How rad! What was I going to show them? I brought two pieces of work to show them in person. One piece was very much my established style, and the other was new work that I wasn't sure about. I also took my tablet with about six photos to show them. Again, I had four photos of work that is very much "me," and two photos of my new work.

Weiks and Craig are co-owners of Smith Shop, a metalsmithing studio that not only produces limited-production wholesale runs ranging from jewelry to architectural hardware, but is a great resource for the Detroit community, offering classes and workshops. Plus, Gabriel has written for many publications, including *Surface Design* and *American Craft* magazines. (He actually wrote an article in *American Craft* that included Michael Dale Bernard. Small world, right?)

Speaking of Michael Dale Bernard … his work is kick-ass. It's powder-coated with vibrant colors and reminds me of a music video; quite the opposite of my work, but I feel is just as distinctive. It was great to get the perspective of the people who I feel are in the "now" of the industry. Plus, getting a different point of view is always valuable. I was glad to have taken part in the review, and highly recommend you do it, too!

### Lectures

When you say "lecture," my eyes instantly start glazing over and my mind is flooded with flashbacks to high school — but this ain't high school. At the SNAG conference, lectures are more like presentations of life stories. I love to listen to how an artist ended up doing the work he or she is doing today. It made me wonder where I'll be in 10 years. What's my progression? Will SNAG influence or fuel that evolution? But the hard part was trying to figure out who I wanted to go see. There was a wealth of talent to choose from.

Intrigued by the title, "Allegorical Landscapes," I decided to attend Lauren Fensterstock's lecture. She has such a different approach to creating that I knew I would enjoy hearing her point of view, but I had no idea I would be as moved as I was. Her ideas and thoughts are so beautifully strange, and her work is so clean. It hooked me. I wanted to hear more. Her use of history, process, and materials all culminated in her current works, which are installations made out of paper, wood, acrylic, and charcoal. The depth, detail, and volume of her work are truly jaw-dropping. Fenterstock spoke about playing with her materials and taking the time to explore them — it made me want to go play in my studio!

After that lecture, I wanted more. I enjoyed hearing Marc Maiorana's history as a blacksmith and the direction of his two companies, and Andy Cooperman's explanation of his pearl-and-chicken necklace (which had influenced me while I was working on a project).

But, I do have to say, there was something disappointing about the lectures — I didn't get to see them all! I had to make a tough call more than once over the week. One session I missed was one of the most talked-about: Mirjam Hiller's. She spoke about her labor-intensive fabrication process and what it takes to create a piece of jewelry that is filled with energy. Words like "she's my new crush" and "inspiring" were followed by a sense of awestruck calm that emanated from those who went to see her speak.

### Demos

I didn't completely miss out, though: I was thrilled to see that some of the artists who gave lectures also gave demos. I was also a little hesitant — it's like seeing behind Oz's curtain or realizing that Pink Floyd is a band and not just a great voice. Maybe, in a way, I didn't *want* to know all the secrets. I wanted to believe that it's really magic after all. Or, maybe it's so personal to see an artist creating their work that

But, I do have to say, there was something disappointing about the lectures —

I didn't get to see them all!

Photo by Casey Sheppard.

Sofia Bjorkman's demonstration

Art crawl! Walker Art Museum

Some of the work on display during the art crawl at The Grand Hand Gallery

I didn't want to pry. If I was up on stage giving a demonstration, I'd feel so exposed, vulnerable, and anxious … the complete opposite of what I bring to or want in the studio. But, I decided to go to both Sofia Bjorkman's and Mirjam Hiller's demos. I didn't want to see how they created their work, I just wanted to see a little bit of who they were, since I missed both of their lectures.

Hiller's demo was first. As I shyly sat in the far back of a gigantic ballroom, others flocked to her workbench. As I watched her mark and saw her sheet of metal, questions from onlookers were flying through the air. I was so taken by her body language, her movement at the workbench, and most of all, her normalcy in responding to a sea of people peeking, almost crawling up over her shoulder, while she created her masterpiece. Then, it hit me. She's not a brooch or a piece of awesome jewelry; she's a human being, creating incredible visions in her head and translating them into tangible, living works of art. It was humbling to see this.

My table during the trunk show!

Photo by Casey Sheppard.

The same applied to Bjorkman's demo. As she created a layered mold that would later be cast into another one of her visions, she spoke about how she developed her style and way of creating by exploring her materials and process. Just like I and many other artists do when in the studio. There was a moment of clarity when I realized that we are all the same, and what makes us a community is that we each to need to create the work we envision and share that vision with others. It's like the saying, "If you aren't being you, then who is?"

## Art crawl

One of my favorite things about Minneapolis is the great art scene. With places like the Walker Art Museum, Gallery 360, and The Grand Hand, it was a given that I wanted to go on the art crawl. My art-crawl path took me to an exhibition at the American Craft Council followed by one at the Northrup King Building. There were many more shows, but not enough time to see them all.

I went to the American Craft Council show to see the exhibition of work by Rachel Timmons, Sharon Church, and April Wood. The three had appeared the first night in a panel discussion called "Fresh, Marinated, and Seasoned: Three Stages in a Life of Teaching, Learning, and Making." Church is the "seasoned" artist, Wood is "marinated," and Timmons is, of course, "fresh." It was interesting to hear their perspectives from the different stages in their careers, and then see their work.

It was a wonderful exhibition, and what a great space! I had been to the American Craft Council offices in New York City a few years back and fell in love with their expansive, in-depth archival reference library, so I was eager to have another chance to fumble through and look at … okay, raid … their overflowing shelves of tantalizing literature.

Next stop: Northrup King Building — a creative center that's home to over 190 artists. I felt it was important to hit this up to see local Minneapolis artists' work and spaces. These artists included jewelry artist Emily Johnson (conference co-chair), Susan Elnora, Betty Jager, and Jennifer Merchant (organizer of the red carpet event — more on that later). All these ladies are showing around the nation/world, are up-and-coming artists, and, I feel, are the "right now" artists in jewelry. They're creating distinctive, individual work, and they have spun one of the tightest-knit, vast, and supportive jewelry communities I've seen. I wanted to see more studios, artists, and great art, but my body and mind were crashing. Time for bed!

## Trunk show

The next morning, I awoke refreshed and ready for another full day. On the agenda: the trunk show. When I signed up for the conference, I had the choice to take part in the annual trunk show. I was advised that this would be another great way to meet people, get my name out there, and hopefully make a little bit of money. I'm on board — sign me up! SNAG took a 25% commission on the sales, and provided a small, white table and the clientele. I loved that they took a percentage; it made me feel like I was giving back! What's great

Art+ Subscribers! Download a free PDF of Casey Sheppard's project, "Construct Fixed-back Cufflinks" at www.artjewelrymag.com/projects.

I was so taken by her body language, her movement with the workbench, and most of all, her normalcy in responding to a sea of people …

is that the trunk show is non-juried, so any SNAG member can partipate (though participation is limited to a certain number of artists each year). And, so that everyone is on a level playing field, there are no table decorations/risers/displays allowed.

The best part of the trunk show was showing with other artists and seeing their work first hand. As I snooped around the room and talked with the other artists, I noticed that Amy Wieks, Gabriel Craig, and Michael Dale Bernard were also showing at the trunk show … my portfolio review professionals! This made me feel like I was becoming involved with and part of the jewelry/metalsmithing community. SNAG, I think I'm a bit smitten with you!

### Red-carpet annual fundraiser and final-night party

After a full four days of meeting new people, seeing inspiring work, and just having a blast, it was all coming to an end. The conference ended with the SNAG Annual Fundraiser, "A Night of Glamour & Gold" (an interactive red-carpet event), and the final-night "Solid Gold Dance Party." The concept behind the interactive exhibition was for attendees to walk the red carpet to get their picture taken while wearing a singular work of art. A few months before the conference, there was a call to exhibit for the red-carpet event. I submitted, and was honored to have my four-finger ring/brass knuckles *D Zed* selected as part of the exhibition.

While the dolled-up vixens strutted down the runway, I dived into some of the most delicious chocolate desserts I've ever had. Then, I drank a few Grasshoppers and attempted to win at "Blingo." As the deejay kicked out some jams, the night became loose. It was exciting to see everyone dancing the night away, recapping our time together and then taking goofy photos with art jewelry and new friends. I felt like we had completed the form I saw taking shape on day one — the form of a solid community that's held together with passion and creativity. "Yeah," I thought to myself, "we belong here."

The SNAG conference is filled with opportunity and community — it's up to you how involved you want to be. I wanted to dive in, and I did. I met new friends and colleagues, tickled my creativity, and gained information. Thank you to all involved who came to the conference, who I met, who I didn't meet, and an especially big thank you to the great city of Minneapolis and SNAG! ■

*The red-carpet event in 2014 allowed participants to try on pieces of wearable art.*

*Group photos of friends, new and old, during the "Solid Gold Dance Party"*

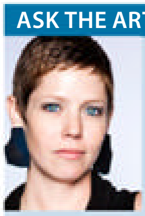
Photos courtesy of SNAG.

IMPACT
LOOKING BACK, FORGING FORWARD
2015 SNAG CONFERENCE | MAY 20-23, BOSTON

## the 2015 conference

- **Impact: Looking Back, Forging Forward**
- **Boston, Mass.**
- **May 20–23, 2015**
- **For more information, visit www.snagmetalsmith.org.**

## ASK THE ARTIST: CASEY SHEPPARD



**If you could study with one artist (living or dead), who would it be?**

"I'd have to say Leonardo da Vinci. That guy was rad! I enjoy his art, yes, but what I love about da Vinci is that he was also a writer, scientist, and inventor. Oh, what I would give to have been his apprentice and handed him tools or fetched his grappa for him while he built some genius mechanical piece of work!"

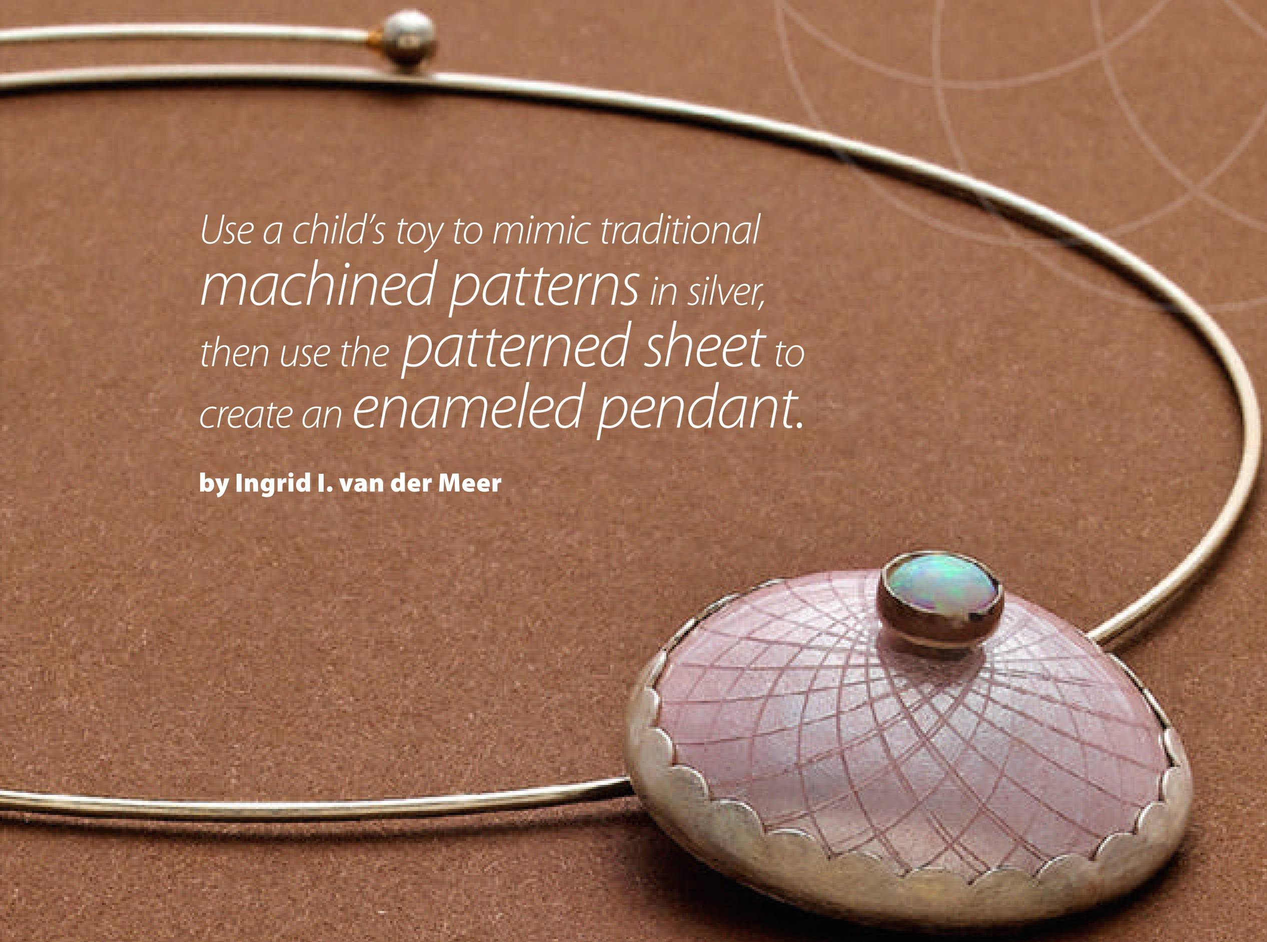
Contact: www.caseysheppard designs.com

■ PROJECT
INTERMEDIATE | ENAMEL/METAL

# Try Your Hand at GUILLOCHE

*Use a child's toy to mimic traditional machined patterns in silver, then use the patterned sheet to create an enameled pendant.*

**by Ingrid I. van der Meer**



When I was studying enamel at the Glassell School of Art in Houston, we had a "Fabergé" semester. We studied the work of Fabergé and were intrigued by the elaborate engraved patterns underneath his enamel work. One of our projects was enameling a piece of guilloche silver — silver that was intricately engraved with a tight, repeating pattern. Our teacher, Jan Harrell, ordered pre-engraved guilloche pieces for the whole class. They were pretty expensive, so I wondered if I could start with plain silver sheet and create a similar intricate pattern myself. Suddenly, I was reminded of a drawing tool I had when I was about 10 years old — the Spirograph. Unfortunately, I got rid of my Spirograph a long time ago, but my husband found me another one online! Now I make my own "guilloche" silver.

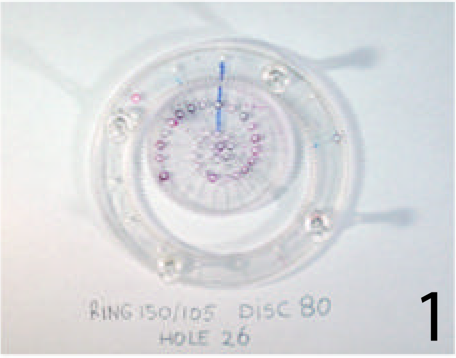
**Texture the silver.** Choose an outside Spirograph ring and an inside disk for your drawing. Use a marker to test the size and pattern on a piece of paper first. Make a note of the ring, disk, and hole numbers. For my sample, I used the #150/105 ring, #80 disk, and #26 hole **[1]**.

Use clear packing tape to secure a 4 x 2-in. (10.2 x 5.1 cm) piece of 22-gauge (0.6 mm) fine-silver sheet to your bench. If the silver isn't large enough for the ring of the Spirograph to stay level as you work, tape sheets of copper (or other metal) of the same gauge around the silver sheet to make an even work base **[2]**.

Tape along the outer edge of the Spirograph ring to secure it to the silver sheet. Be sure to keep the inside edge of the ring free of tape, or your pattern will be uneven.

**NOTE:** The latest version of Spirograph comes with "Spiro putty," which can be used in place of tape to secure the ring to your metal. To use the putty, rip off 5–6 small pieces (the size of a split pea), roll them into balls, and space them evenly around the ring. Press the ring firmly and evenly onto the metal, squishing the putty and securing the ring in place.

Use a fine-tip permanent marker to mark the starting position of your design on the inside of the Spirograph ring and on the disk. If you've used a Spirograph before, the technique is the same, except that you'll use a sharp scribe in place of a pen to create the spiral design on the silver. Maintain pressure on the scribe in the disk during the whole process, and make sure you don't lose contact with the silver



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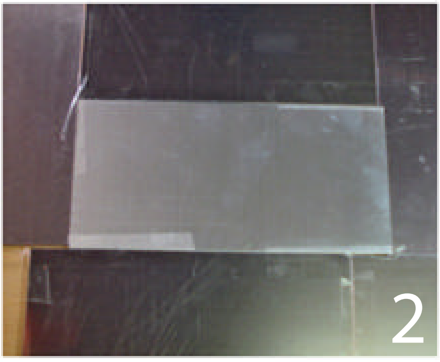


2

## BASICS & VIDEOS

| Learn fundamental techniques in these bonus tutorials: | B | 🎥 |
|---|---|---|
| Basic sawing of metal | ● | ● |
| Using a dapping block | ● | ● |
| Drilling through metal | ● | ● |
| Piercing metal | ● | ● |
| Washing, drying, and storing enamel | ● | ● |
| Sifting enamel | | ● |
| Soldering | ● | ● |
| Bezel set a cabochon | ● | |

B **Basics, *page 73***
🎥 **Videos, www.artjewelrymag.com/videos**

## materials

- Fine-silver sheet, 22-gauge (0.6 mm), 4 x 2 in. (10.2 x 5.1 cm)
- Copper (or other scrap metal) sheet, 22-gauge (0.6 mm) (optional)
- Powdered enamel:
  - Clear enamel (flux) for silver
  - Transparent colored enamel
- #0-80 Screw, stainless steel, flat head, right-hand threads, 3/16 in. (5 mm)
- Fine-silver bezel cup, 5 mm (3/16 in.)
- Cabochon (I use a simulated opal), 5 mm (3/16 in.)
- Bezel wire: fine-silver, scalloped edge, amount determined by design
- Sterling or fine-silver sheet, 22-gauge (0.6 mm), 2 x 2 in. (51 x 51 mm)
- Hex nut, stainless steel, right-hand threads, #0-80 thread size

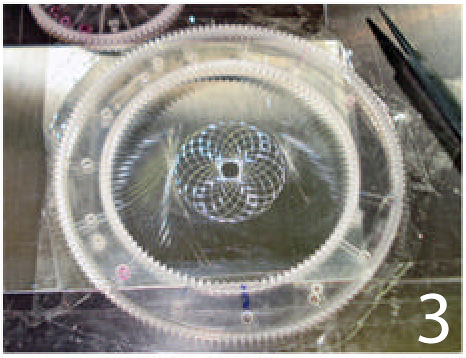
### toolboxes, page 76

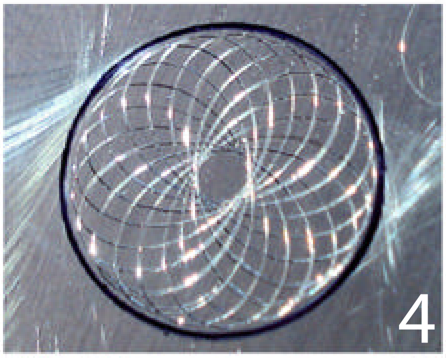
- Enamel
- Soldering/Annealing
- Sawing/Piercing
- Stone Setting
- Finishing

### additional tools & supplies

- Clear packing tape
- Disk cutter
- Spirograph: ring #150/105 and disk #80
- Dapping block
- Liquid thread fastener

Find out where to buy supplies, *page 79*
See Safety Basics, *page 76*





sheet **[3]**. If you haven't used a Spirograph before, take some time to play and familiarize yourself with the feel and motion of the tool on paper before moving on to metal.

Be careful and patient with this process. Practice your design a few times on a sheet of copper before attempting to scribe spirals in your silver. As simple as this child's toy can be to operate with paper, it's a bit trickier with metal. The scribe can easily slip out of the disk, or the disk can slip out of the ring! If this happens on a piece of paper, you just start over again. On silver, it may leave a mark you do not want. If it doesn't leave a mark, use the permanent marker marks to realign the disks and pick up the pattern, and start drawing again. If there is a stray scribe mark on the silver, you have one second chance by using the back of the silver sheet.

**Form the dome.** Center the pattern in a circle template and use the marker to trace the circle **[4]**. Use a large disk cutter or a jeweler's saw with a 2/0 blade to cut out the circle.

Mark the center of the disk (see "Find the Center of a Circle," *page 40*). Place the disk, patterned-side-down, in the largest depression in a dapping block, and dome it. Move through progressively smaller depressions to achieve the desired dome **[5]**.

Use a #56 (3⁄64-in./1.19 mm) drill bit in a flex shaft or rotary tool to drill a small hole in the center of the engraved dome.

**NOTE:** This drill bit is slightly smaller than the screw you'll use to attach the set stone to the enameled dome, so test-fit the screw, and use a round file to enlarge the hole if needed to create a snug fit.

**Set the stone.** Use medium solder to attach the head of a #0-80 screw to the bottom of a 5 mm (3⁄16-in.) fine-silver bezel cup **[6]**.

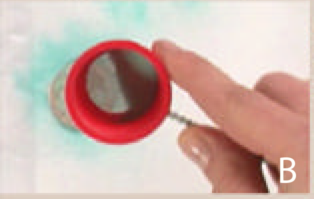
**NOTE:** Because the screw is steel, don't place the bezel-cup component in your pickle to clean it. Use hot water to remove the flux; don't worry about removing the oxidation. The majority of the component is hidden after final assembly, and you'll clean the part that will be seen after you set the cabochon.

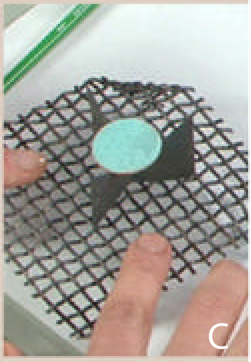
Place a 5 mm (3⁄16-in.) cabochon in the bezel. Use a bezel roller to push the top of the bezel onto the cabochon. Push down one side, then the opposite side, working around the setting. Use a steel burnisher to burnish the bezel smooth and flush to the cabochon. Use a soft buffing wheel and red rouge to polish the bezel, and then set it aside. If you prefer a satin finish,

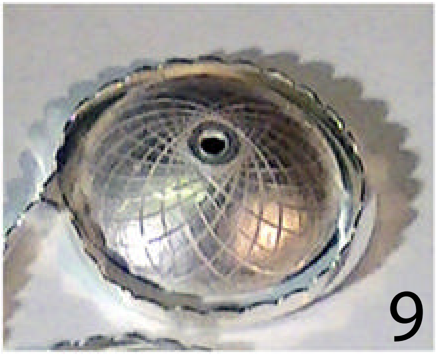
## sifting enamels

Clean the surface of your metal with a wet Scotch-Brite pad to remove all dirt and oils **[A]**. Handle the metal only by its edges to keep it oil free. Use a paintbrush or a spray bottle to apply a coat of Klyr-Fire (holding agent) to one side of your metal piece. Fill a sifter about one-third full with enamel powder. While the holding agent is wet, hold the sifter above your metal and gently tap the sifter's side to release an even layer of enamel grains onto your piece **[B]**.

Use a spatula to transfer your piece to a trivet **[C]**. Allow the enamel to dry completely before transferring the trivet and its mesh support to the kiln for firing.







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use 600-grit sandpaper and lightly sand the bezel instead.

**Wash the enamels.** It's important to wash the fines (porcelain-dust byproduct) out of transparent enamels, or the colors will be cloudy after firing. Place a small amount of enamel in a cup, add distilled water until it's slightly higher than the enamel, swirl the cup gently, and allow the enamel to settle. Pour the cloudy water into a large bucket (not down the drain!). Repeat this process 8–10 times until the water is perfectly clear. Place the clean, wet enamel onto a sheet of paper and cover it with a second sheet to keep dust or other contaminants out. Let the enamel dry. Then pour the dry enamel into a container with a tight-fitting lid. Repeat to wash and dry each color of transparent enamel.

Let the fines settle at the bottom of the bucket before disposing of the water. Carefully collect the waste enamel powder, and store it to use as counterenamel or dispose of it at your municipal hazardous-waste-recycling center.

**Counterenamel the back of the dome.** Heat a kiln to 1450°F (788°C). Clean the domed piece of silver with a degreasing agent or other cleaning method until water sheets off the surface. Spray the back of the dome with a mixture of one part enameling adhesive and three parts distilled water. Use a sifter with 150 or 200 mesh to sift a light coat of clear enamel (flux) over the back of the dome.

**TIP:** Clear enamel is known and sold as flux, which can be confusing since it is not the same as the flux used in soldering metal.

Clean out any enamel from the drilled hole using a toothpick or scribe before firing **[7]**.

Transfer the piece to a steel trivet and let it dry for 15 minutes. Fire the piece in the kiln for about 2–3 minutes. Take it out of the kiln and let it cool.

**Enamel the front of the dome.** Spray the front of the piece with the enameling adhesive solution, then sift a light coat of the washed and dried flux over the piece (see "Sifting Enamels," *opposite page*). Return the dome to the trivet and let it dry **[8]**. Fire the dome in the kiln for 2–3 minutes. Take it out of the kiln and let it cool. Repeat to add a layer of your choice of transparent enamel.

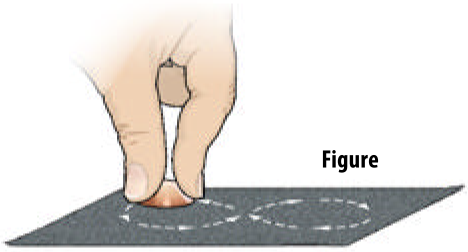
**Make the bezel.** Wrap fine-silver bezel wire snugly around the base of the enameled dome **[9]**. Use flush cutters to cut the wire where it overlaps, and file the ends until they meet flush with no gaps. Place the bezel wire on a soldering board, apply flux to the join, and use hard solder to solder the join closed. Quench, pickle, rinse, and dry the bezel wire. If needed, use a needle file and then 200-, 400-, and 600-grit sandpaper to refine the join.

Place the bezel wire on a round mandrel, and use a rawhide mallet to refine its shape.

**TIP:** If you don't have a round mandrel large enough to shape a large, round bezel, cut off the handle of an aluminum baseball bat, and use that as a mandrel.

Insert the dome into the bezel wire from the top, and refine the shape as needed. The bezel should fit snugly.

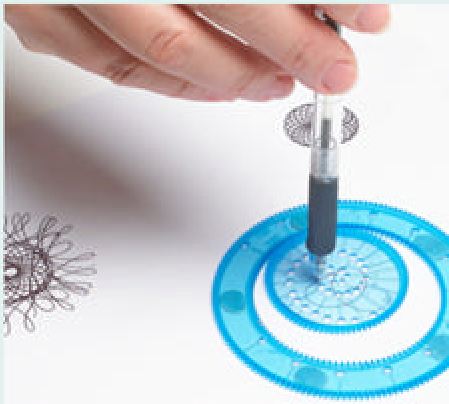
Tape a piece of 400-grit sandpaper to a flat work surface. Run the bottom edge of the bezel over the sandpaper in a figure-8 motion to make the edge flat and level **[Figure]**.



Figure

## tool spotlight: spirograph

If you didn't grow up playing with a Spirograph, the mechanics of it are fairly simple. Here is a refresher/crash course on the traditional use of a Spirograph using pen and paper. The large numbers on the rings and disks indicate the number of teeth that are on each ring or disk. So the #150/105 ring has 150 teeth on the outer edge of the ring and 105 teeth along the inner edge.

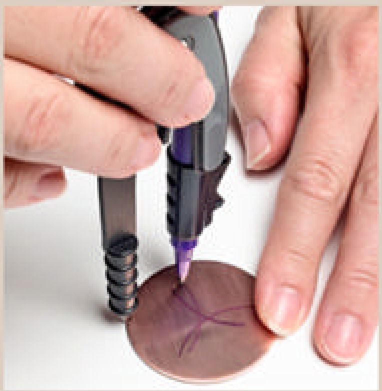


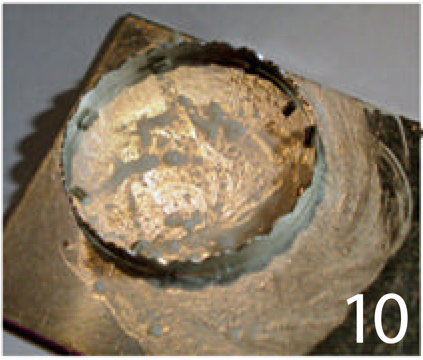
- Secure a ring using Spiro-putty (if you have the newest version), tape, or push pins over your paper.
- Set a wheel inside the edge of the ring so their teeth interlock.
- Place a marker or pen into one of the numbered holes on the wheel.
- Keep your pen perpendicular to the paper, push the pen to rotate the wheel around the inside of the ring. Continue until your line overlaps the starting point.

## find the center of a circle

The most common way to find the center of a circle in jewelry making is to use dividers. However, dividers leave behind score marks, and you won't be able to sand those off without potentially interfering with your spiral design. So, swap the dividers for a circle compass and fine-tip permanent marker.

- Set the circle compass to the approximate width of the disk's radius.
- With the point resting against the edge of the disk, mark an arc across the center of the disk. Rotate the disk, and add a second arc. Rotate, and mark again.
- If your circle compass was set to the exact radius of the disk, all the lines will intersect at the centerpoint. But it's more likely that the arcs will create an open space at the center of the disk. The center of this space is the centerpoint of the disk.

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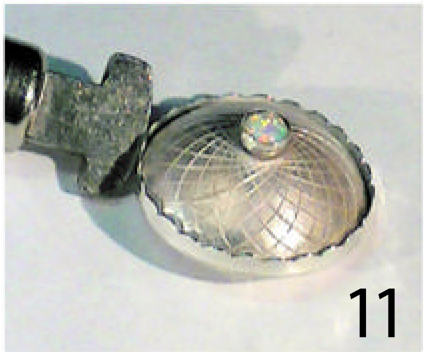
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Process photos by Jan & Ingrid I. van der Meer.

**Attach the backplate.** Clean a 2 x 2-in. (51 x 51 mm) piece of 22-gauge (0.6 mm) sterling or fine-silver sheet. Place the bezel wire on the silver sheet, and apply flux to the join. Place pallions of medium solder inside the bezel wire touching the wire and backplate **[10]**, and heat the piece evenly until the solder flows. Quench, pickle, rinse, and dry the assembly.

Use the jeweler's saw to trim the excess silver from around the bezel wire. File the join, then use 200- and 400-grit sandpaper to refine the join. Pickle, rinse and dry the bezel. Then use white polishing compound followed by red rouge on a buffing wheel to polish the sides of the bezel wire.

**Form the bail.** Use the jeweler's saw to cut out a teardrop shape (mine is roughly ¼ x ⅝ in. [6.5 x 16 mm]) from the remaining sterling silver or fine-silver sheet. Use a file, followed by 200- and 400-grit sandpaper to sand the edges smooth. Use roundnose pliers to bend the narrow end of the teardrop into a U shape. Use flatnose pliers to bend the wide portion of the teardrop in the opposite direction as the U bend. Check the bail against the backplate. Orientate the wide end of the bezel down, and center the bail in the top third of the backplate. Adjust the shape as needed to get good surface contact between the backplate and the two ends of the bail.

**Attach the bail.** Use easy solder to solder the bail to the back of the bezel cup.

**Finish the bezel.** Finish the back and polish the bezel. I textured my backplate with circle shapes using my scribe and soldered my maker's mark.

**Assemble the pendant.** Insert the bezel-set cab screw assembly through the hole in the center of the enameled dome. Screw the nut onto the shaft of the screw and tighten it against the inside of the dome. Once the pendant is assembled, there will be no access to re-tighten the nut if needed, so use a liquid thread fastener to prevent the screw from loosening over time.

Insert the enameled dome into the bezel, and use a bezel roller to set the dome **[11]**. If needed, use 200- to 400-grit sandpaper, followed by white polishing compound and red rouge on a buffing wheel to remove any marks from the bezel wire. Remove any fingerprints from the enamel or bezel with a soft, clean cloth.

Get more information about working with enamels by checking out these handy references!
- Introduction to Enamels: A glossary of terms plus safety basics
- Test Your Transparent Enamels
- Enamel Textures

www.ArtJewelryMag.com/reference

### ASK THE ARTIST: INGRID I. VAN DER MEER

**If you could study with one artist (living or dead), who would it be?**

"If I could study with any artist, it would be René Lalique. I love his Art Deco and Art Nouveau designs, and the refined details in his enamel work, especially his plique-à-jour pieces."

Contact: ingrid@doubleeyedesign.com
or www.doubleeyedesign.com

*Creativity comes from trust.*
*Trust your instincts!*

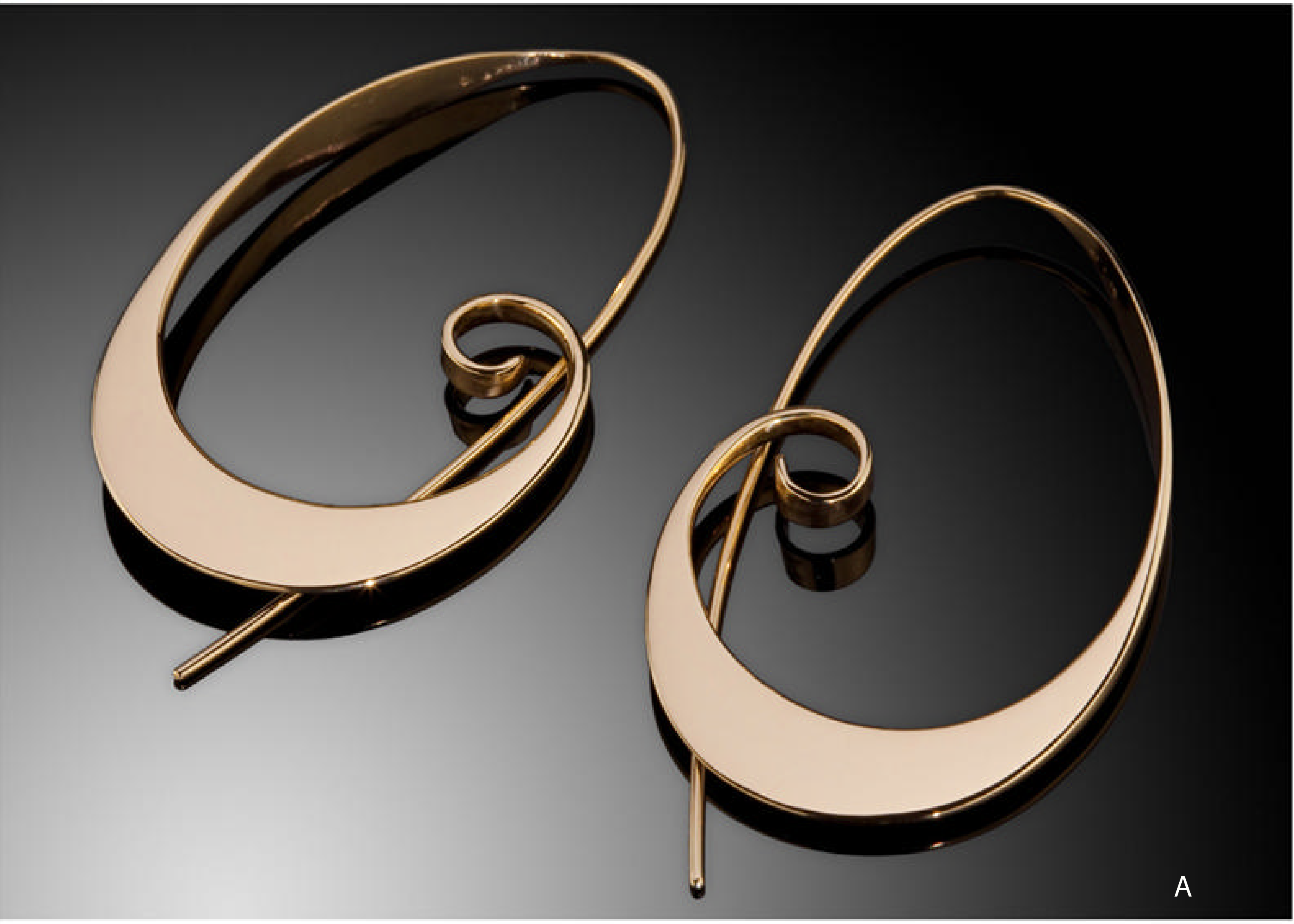
—Rita Mae Brown

# GALLERY

**[Page 41]** Inspired by the vitality of cityscapes, **Alison Antelman**'s *Hanging Garden* necklace is hand-fabricated and formed. Antelman designs with the life of the city in mind, creating pod-like clusters arranged into a metropolitan nightscape adorned with gold and faceted stones. The pendant measures 3 x 4 in. (7.6 x 10.2 cm). Photo by Eric Smith.

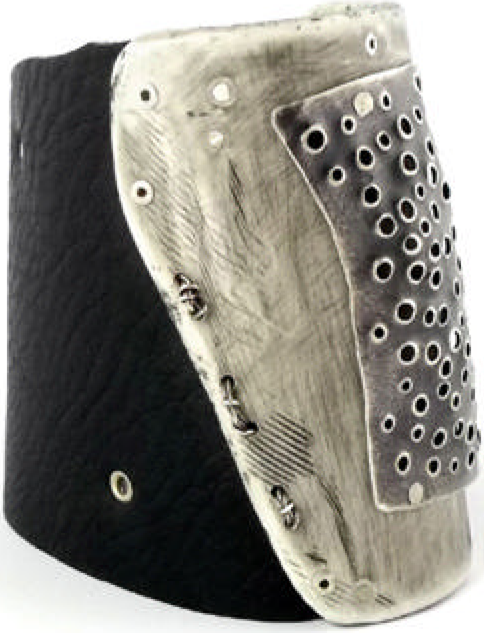
**[A] Ben Dyer**'s *Big Earrings* are a simple statement in 14k gold. Dyer tapered the wire in a rolling mill, then forged and formed it. The curve and subtle shifts in shape are inspired by the form of and interaction with the wearer. 2¼ x 1⅛ in. (57 x 29 mm). [Dyer shared his techniques in "An Introduction to Precision Forging," March 2014.] Photo by Jason Dowdle.

**[B]** *Exotic Origins,* from **Jeanie Pratt**'s "Bugs are Beautiful" series, highlights the artist's background in the fiber arts and her love for color, pattern, and texture. Pratt incorporates her signature hand-woven and knit wire patterns, insect wings, and a collection of brightly colored stones in this ornate and intricate design. The largest element is 1¼ x 1 in. (32 x 25.5 mm); the necklace measures 18 in. (45.7 cm). Photo by Steve Rossman.


A

For more from Casey Sheppard, see "Navigating the SNAG Circus," *page 30*. Her online project, "Construct Fixed-Back Cufflinks," is free for subscribers at artjewelrymag.com!

**[C] Casey Sheppard**'s work is very much an extension of her beautiful, rebel-punk self and her voice as an artist. She named this cuff, *Judy Was A Punk*, in honor one of her favorite bands, The Ramones. Sheppard textures PVC pipe and sterling silver, and combines her elements with leather using cold connections. 2¾ x 8½ in. (7 x 21.6 cm). Photo by the artist.



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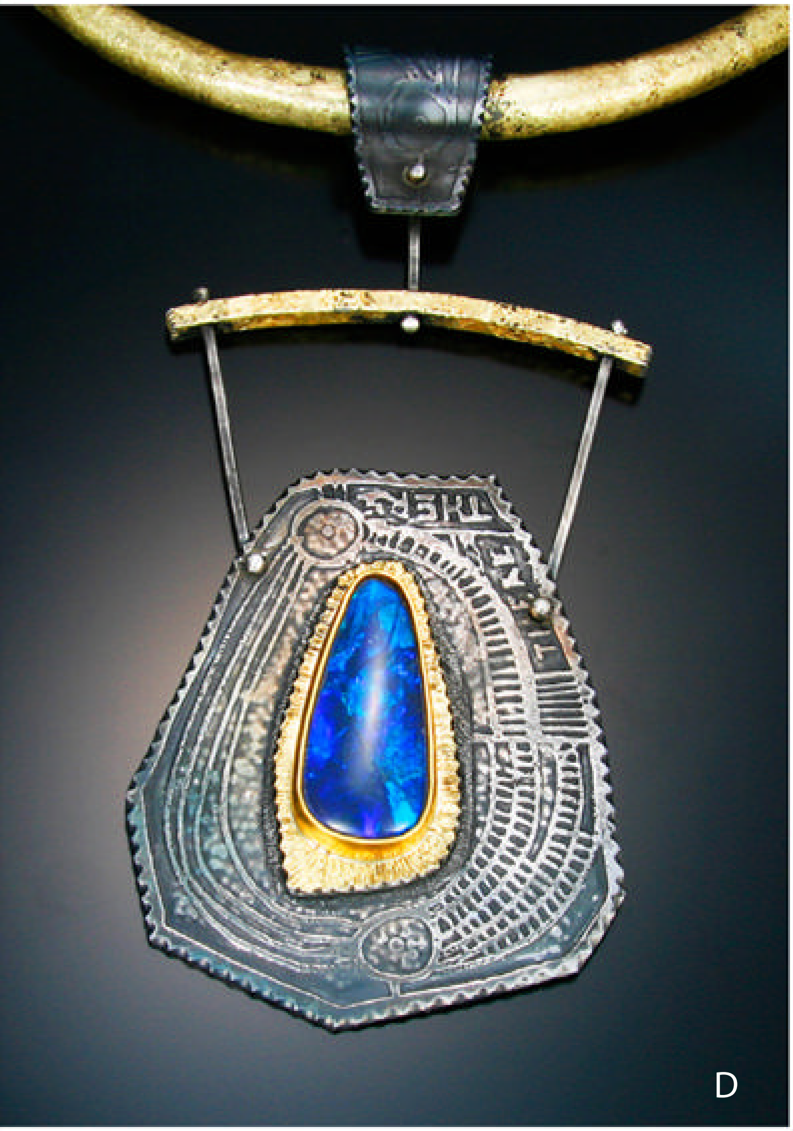
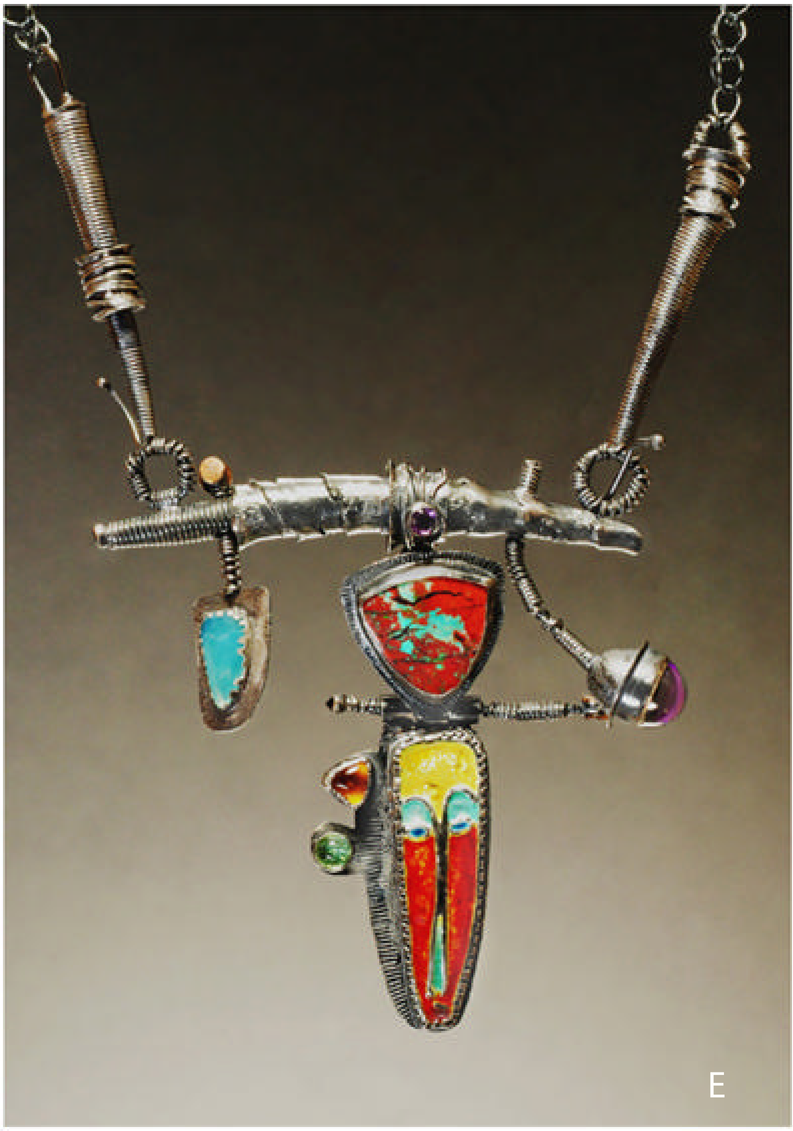
B

**[D]** Working with fashion designer and painter Cornelia Selover, **Chris Nelson** used a saltwater etching technique to texture an iron backplate and bail. Many of the iron elements throughout *Jonah's UA* are fused with gold, bringing an Old World luster to this modern piece. The black opal is an interchangeable object that can be used with multiple bails. 2¼ x 4¼ in. (57 mm x 10.8 cm). Photo by the artist.

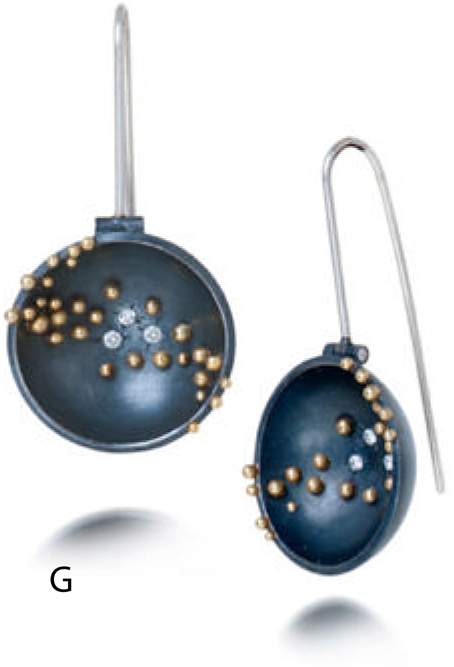
**[E]** In developing the design for her *Ekcentricity* neckpiece, **Linda Kaye-Moses** echoed the elongated facial constructs of Etruscan sculptures. The prominent figure is formed in metal clay, accentuated by vibrant enamels, then combined with other elements of sterling and fine silver. The figure is adorned with garnet, amethyst, cuprite, opal, tourmaline, and Montana sapphire. Photo by Evan J. Soldinger.

**[F] Janine DeCresenzo**'s *Coral Rings* are a mix of natural elements and modern shape. Inspired by aquatic life and urban relics, DeCresenzo plays on the contrast of materials. She hand-forms natural coral and sets it in an oxidized sterling silver base, then accents some pieces with a tube-set topaz or ruby, adding further dimension to her already highly textured designs. Photo by Peter Groesbeck.





**[G]** The idea for **Patricia Tschetter**'s *Starry Night Earrings* was born from the broad strokes of bright color over the richly saturated night sky in Vincent van Gogh's famous paintings. Tschetter uses gold granulation with diamonds to scatter stars across her darkened sterling silver sky. 1¼ x ⅝ in. (32 x 16 mm). Photo by Marilyn O'Hara.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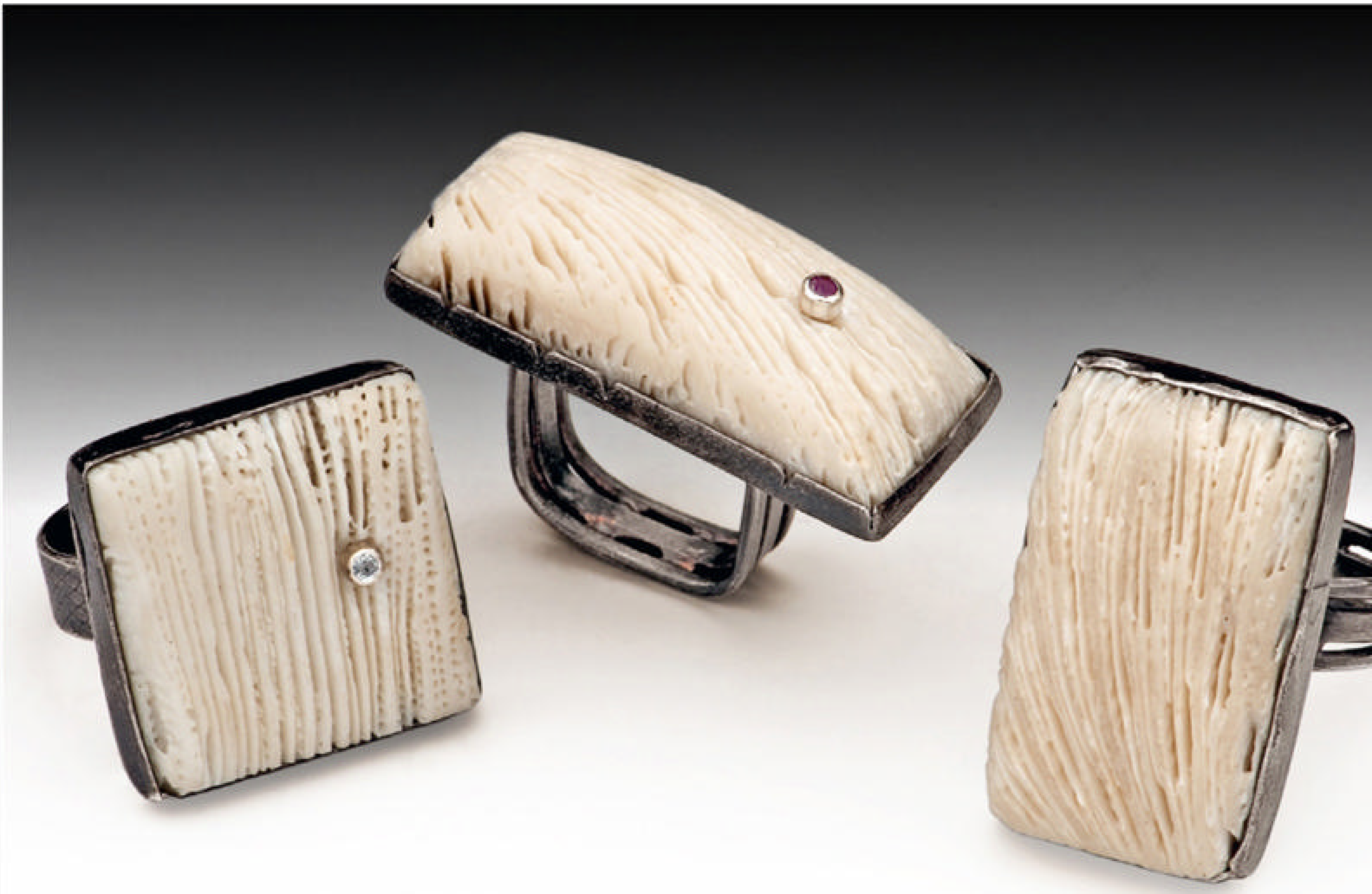
## send us your gallery submissions

*For our guidelines, go to* ***www.artjewelrymag.com/submit****, or send an email to* ***submissions@artjewelrymag.com****.*

**want more inspiration?** You can see these and over 450 other pieces that have been featured in our Gallery at **www.artjewelrymag.com/gallery**.


F

*To contact the featured artists, see Contacts, page 79*

# Don’t Settle for a PLAIN BEZEL

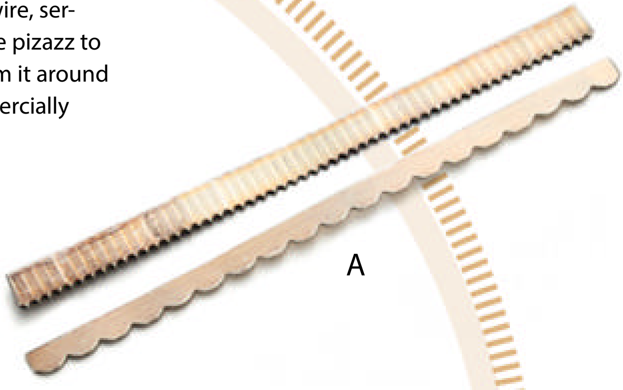
## Add texture, mix metals, and alter edges to find new ways to personalize your bezel settings.

**by Jeff Fulkerson**

**Do you ever get tired** of using standard 26-gauge (0.4 mm) ⅛-in. (3 mm) bezel wire? Have you come upon a stone that just didn’t lend itself to that old standby? Have you ever wondered if there was some alternative to relieve the boredom? I’m happy to say the answer is “Yes!” With a little creativity and effort, you can transform your bezels.

## PREMADE OPTIONS

The easiest way to change up your bezel is to buy other shapes of commercially available bezel wire. You can get scalloped wire, serrated wire **[A]**, and even gallery wire. Or you can add a little pizazz to plain bezel wire by stamping patterns on it before you form it around your stone. I used an old nail set to stamp circles on commercially available scalloped bezel wire for the brooch shown in **[B]**.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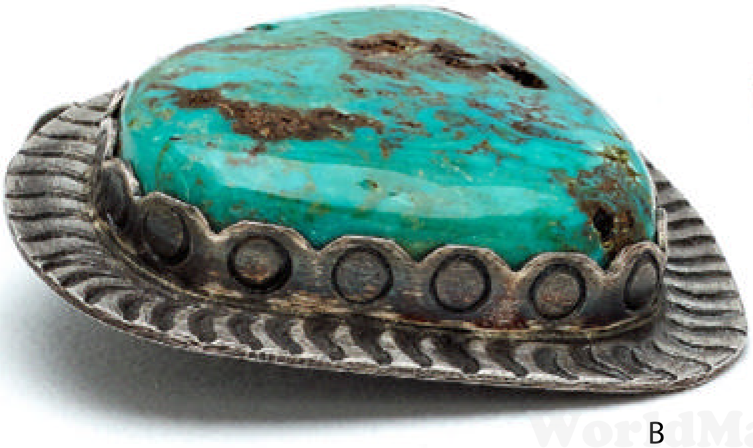
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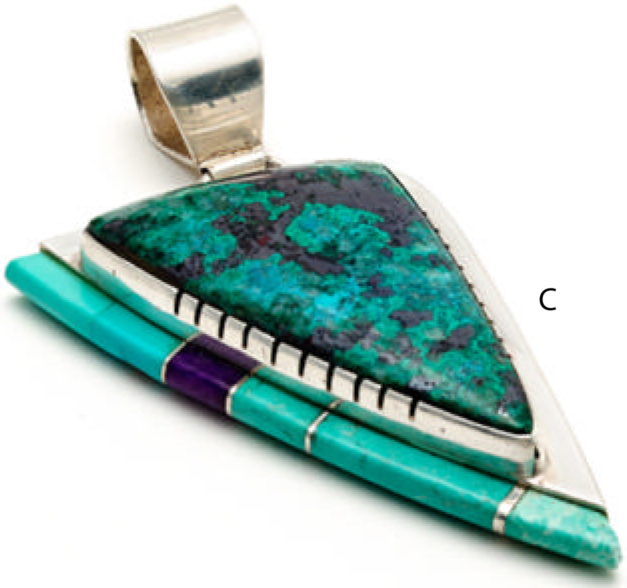
**Free for a Limited Time!**
*How to Make Metal Clay Bezel Wire*
Download this technique for free until April 6, 2015; after that it will be on sale at **www.artjewelrymag.com**.


C

## MAKE YOUR OWN

Avoid purchasing bezel wire altogether by making your own. I prefer to buy 22-gauge (0.6 mm) fine-silver sheet and cut it into 3⁄16-in. (5 mm) or wider strips to make my own bezels. I like the look of the thicker sheet, and it gives me more flexibility in how I can finish the bezel. If you have a large stone, it gives your piece a more substantial look. You don't want to go much thicker than 22 gauge (0.6 mm) though, as it becomes more difficult to push the bezel against your stone if you use a thicker gauge.

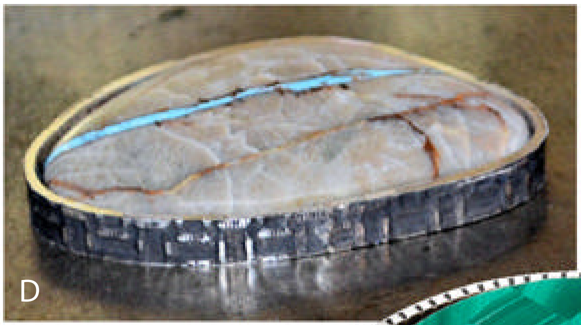
Another perk of making your own bezel wire is that if you're setting a tall cabochon, you can make it as high as needed to accommodate the stone. The stone pictured in **[C]** has a girdle that's almost ¼ in. (6.5 mm) high, so using ⅛-in. (3 mm) bezel wire would not only look silly, it wouldn't function.

## TEXTURE & COLOR OPTIONS

In addition to using stamps and texture hammers, I also like to add texture to bezel wire by roll-printing it with the rolling mill. I used a brass texture sheet to texture the bezel shown in **[D]**. You can run anything from sandpaper to brass texture sheets with your metal through the rolling mill to get a customized look. Running the wire through the rolling mill will work-harden it, so you'll want to anneal it before forming it around your stone.

**TIP:** Adding texture to custom bezel wire stretches the metal and distorts the original dimensions. Because of that, I prefer to texture the sheet first, then cut it to size.

For the piece shown in **[E]**, I ran a strip of 22-gauge (0.6 mm) copper through the rolling mill with a brass texture sheet and then trimmed to the size I wanted. Copper makes great bezel wire because it's so malleable, plus it adds color and contrast to your piece if you solder it to a silver backplate. Notice how the copper bezel brings out the colors in the small jasper set on top of the malachite. If you have a more ample budget, you can use 18- or 22-karat gold bezel wire **[F]**.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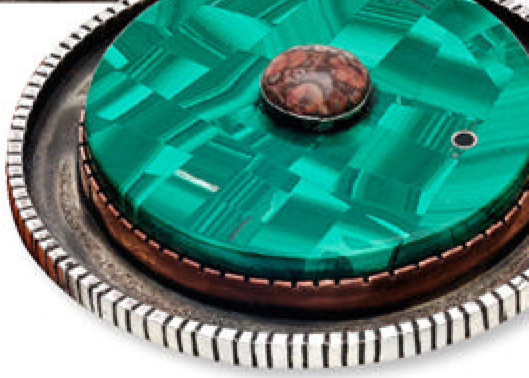
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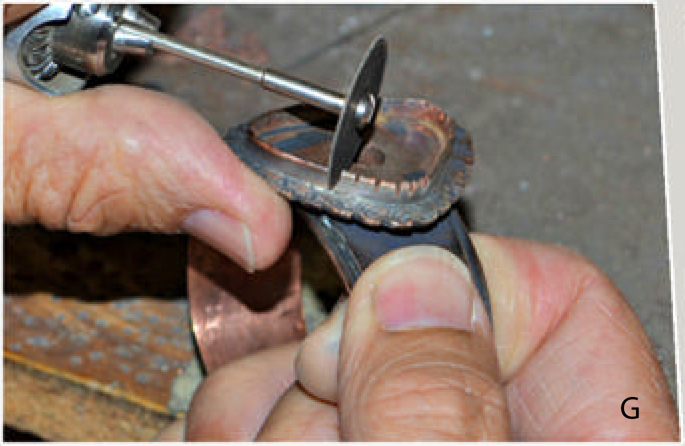
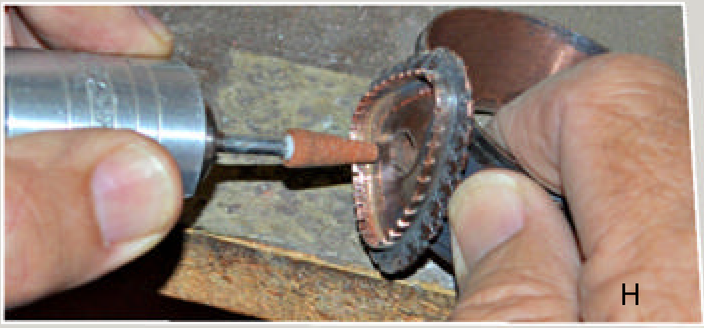




## RESHAPE YOUR BEZEL

Once you have soldered down your bezel, there are other things you can do to spice it up. I like to use a cut-off wheel in my flex shaft to cut slots in the bezel **[G]**. (Be sure to wear eye protection while doing this!) Cut-off wheels come in different thicknesses, so you can experiment and decide which look you prefer. You can be exacting and measure the depth and spacing of the cuts, or you can just eyeball it for a more improvisational look.

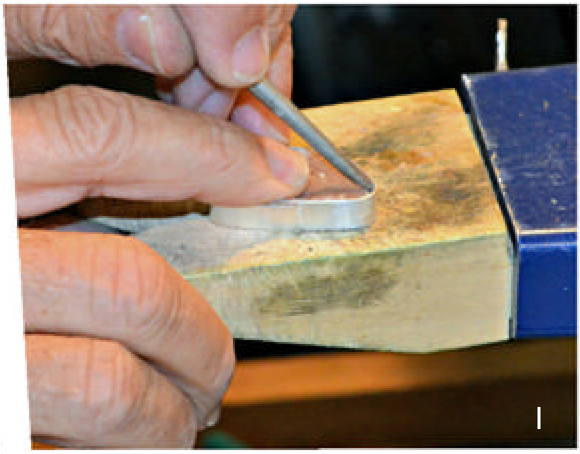
**NOTE:** This is a great technique to use with a stone that has high sides and sharp corners. I cut a V-slot at the corners of the bezel so that when I push the bezel wire onto the stone, it lies flat.

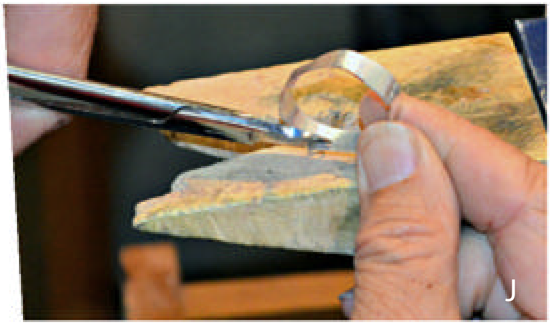
After I've cut my slots, I use a bur in my flex shaft to clean up the inside of the bezel before I set the stone **[H]**.

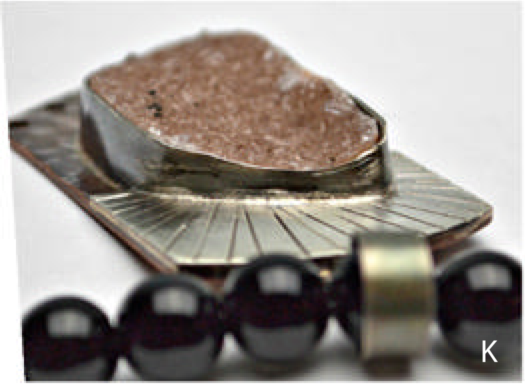
**TIP:** As an alternative to a cut-off wheel, you can use a file and file notches and/or patterns on your bezel.

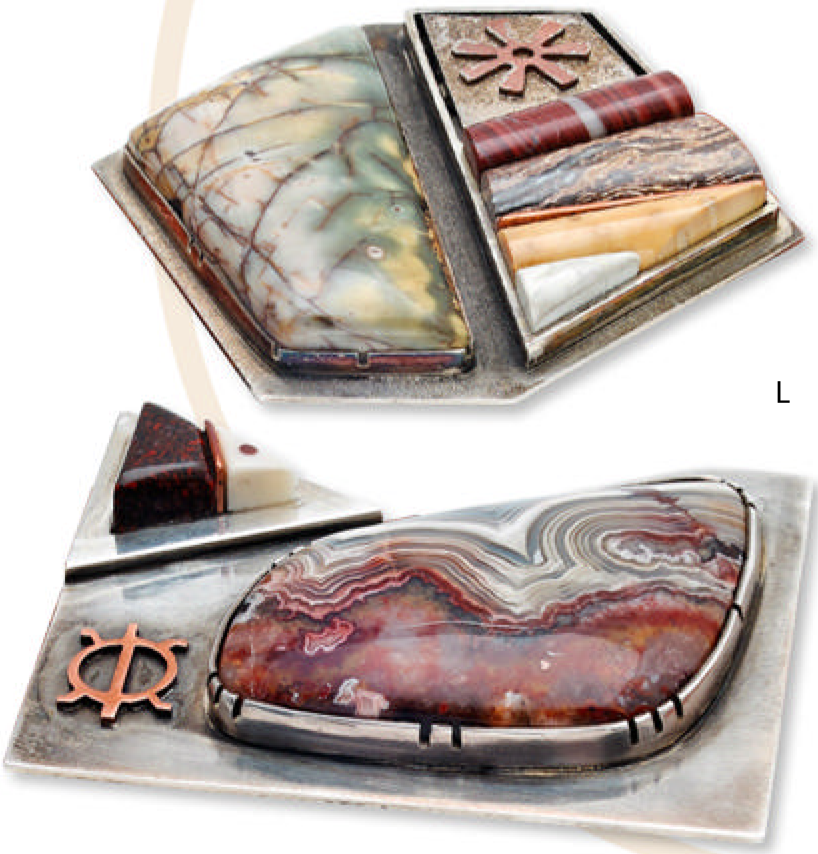
## UNEVEN GIRDLE

You may have a stone you want to set that has an uneven girdle, a common problem with setting drusy gemstones. Wrap your bezel wire around the stone. Mark, cut, file, and solder the ends to form the bezel. Before you solder the bezel down to your backplate, place the stone in the bezel and use a scribe to mark the inside of the bezel along the line of the stone's girdle **[I]**. Remove the stone, and use a pair of small shears to cut along your line, cutting as close as you can to the line without going over it **[J]**. Check the cut by placing the stone in the bezel. Mark the bezel wire again, if needed, then remove the stone and file away any high spots. Once you have soldered the bezel down, you can recheck your fit, remove the stone, and file your bezel to the exact profile of your uneven stone **[K]**.





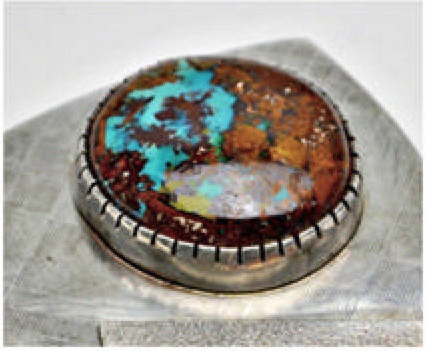




L

## ROUND THE EDGES

After you've set your stone, use a medium silicone wheel to carefully round the top outside edge of your bezel **[L]**. This gives the top edge of the bezel a finished look. You can then polish the bezel with a finer silicone wheel, or on your polishing machine.



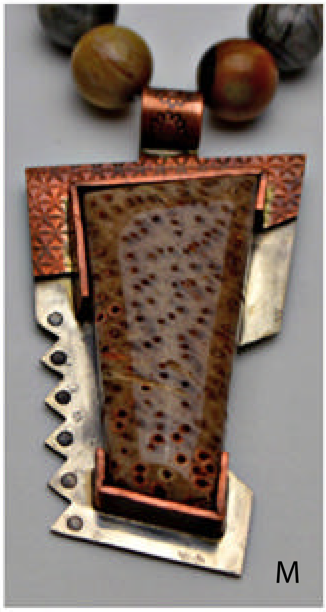
Process photos by Jeff Fulkerson.

## FINISHING

Every piece doesn't demand a high polish. In fact, plenty of jewelry today shows a more textured or matte finish, which is another way to make your bezel stand out. Patinate a textured bezel, then sand or brass-brush the high spots — you can really make a statement with your piece.

## PARTIAL BEZELS

Also remember: Your bezel doesn't have to completely surround your entire stone. You can make a partial bezel to hold your stone; the only caveat is that you must be sure that you have captured the stone securely. If your stone has angular edges, make sure you've captured the corners. If you're working with a round or oval cabochon, you'll need the bezel to hold down the stone at a minimum of three points. I especially like this technique with stones that have square or sharp angles **[M]**.



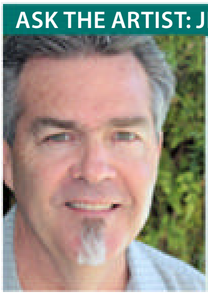
M

Mix and match any or all of these techniques to take your bezels from a utilitarian necessity to an interesting, integral part of your design. ◼

**Organic Textures**

Rolling textures onto metal doesn't have to involve only pre-fabricated texture plates. We show you some options using materials from around your house and yard that you can use to roll textures onto metal at **www.artjewelrymag.com/reference**.

### ASK THE ARTIST: JEFF FULKERSON



**If you could study with one artist (living or dead), who would it be?**

"Charles Loloma, because he had such a sense of design. His style was organic, yet sophisticated. He was a game-changer, a true pioneer."

Contact: www.aldenjeffriesdesign.com

Spotlight on Education

# Studying Abroad

*A modern master of chasing and repoussé offers workshops in locations rich with ancient history.*

**by Hazel L. Wheaton**

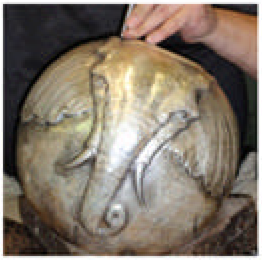
**The question that started it all was an innocent one.** Sharon Fosko, Valentin Yotkov's apprentice, looked around the workshop in Brooklyn where Yotkov was leading a group of students through the fundamentals of chasing and repoussé and wondered, "Why aren't we doing workshops in *Europe*?"

Yotkov's answer was one that Fosko would teasingly remind him of in the years to come: "Oh right. Who's going to go to Europe?"

That answer didn't actually seem unreasonable at the time. As one of the leading chasing and repoussé artists in the world and a superlative instructor, Yotkov was in demand, and he was happily teaching workshops across the United States. Ten years ago, the new wave of travel classes hadn't become widespread, and the idea that students would break out their passports in order to take a workshop seemed far-fetched.

Fosko, however, didn't hesitate. She pulled out a sheet of blank paper, scrawled "Italy Bound" across the top, and passed it around the classroom. As it turned out, a lot of people *would* go to Europe. Before the day was over, they had a full roster of students. Now they just had to arrange for the class.

Setting up the first Tuscan workshop was a challenge of logistics, as Fosko worked to arrange classroom space, transportation, meals, and entertainment for the group via phone and email. In a country where connections are king, she was an outsider.



**Top:** Yotkov's rendering workshop is held beneath stunning frescoes in a 15th-century Venetian palazzo.
**Above:** Students visiting Venice have time to explore the city and take a gondola ride.
**Above right:** While in Venice, students visit a textile factory where the original 18th-century hand looms are still used to produce gorgeous silk velvet.
**Right:** Yotkov creating one of his incredible chased silver vessels.

If you're interested in international workshops for metal clay, go to **www.artjewelrymag.com** to read an interview with Holly Gage, who has set up workshops in Europe and Mexico.

Ten years later, the pair offer three European workshops a year: one in Tuscany, one in Venice, and one in Yotkov's native Bulgaria. Over the past decade, Fosko and Yotkov have forged a web of connections that are solid and familial. How do they know they've gotten past the status of outsiders? Fosko observes, "In the last two years, if I say something in Italian that's not the way it should be, they come over and they'll whisper or they'll say it right out in front of the whole group … In the beginning I'd ask them to correct me and they'd say 'No, no, no, you're fine!'"

Aside from location, the three classes represent distinctly different approaches to teaching. In Tuscany, students spend the mornings in a hands-on chasing and repoussé class in a 16th-century villa on the outskirts of Siena; afternoons are spent exploring the nearby towns and countryside. After working on their technique, students can see the masterpieces in the Pitti Palace in Florence, linking their lessons to the ultimate expressions of the art. The Tuscan workshop, especially, is a magnet for repeat visitors — students return year after year, which lends itself beautifully to techniques such as chasing and repoussé, which require sustained study to master. "We try to find exciting locations, places where people would absolutely enjoy to go," says Yotkov. "It encourages them to continue. When you work in a palace or a Tuscan villa, how are you not going to fall in love with this technique? It's not possible."

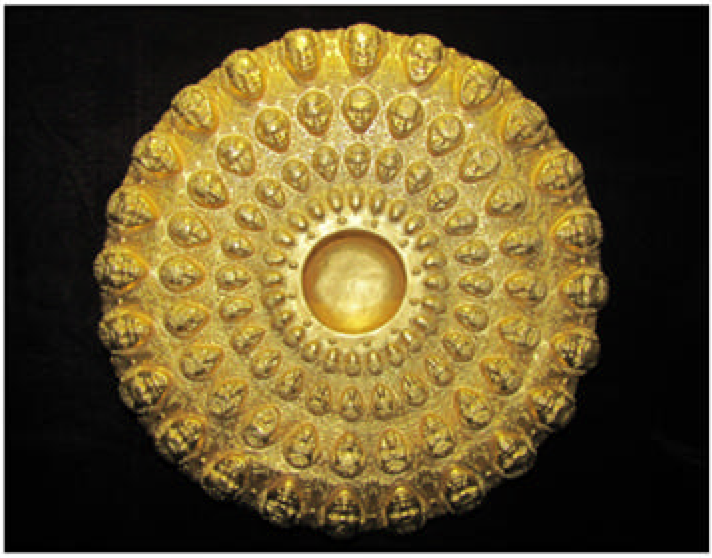
The trip to Bulgaria, on the other hand, includes no hands-on work. The country has a rich history that is of particular interest to metal artists. What is now present-day Bulgaria was home to some of the earliest civilizations in Europe; the oldest golden treasure ever discovered was unearthed here. That treasure, the Varna treasure, dates from 4600 B.C. — predating the region's legendary Thracian goldsmiths by over 2,000 years. By visiting museums, villages where artisans have used the same tools and techniques for hundreds of years, and contemporary artists' shops, students learn how the culture and customs of the country are inextricably intertwined with its art and artifacts.

In Venice, Fosko and Yotkov found an advocate in the manager of the Ca'Sagredo Hotel, a restored 15th-century palazzo on the Grand Canal. The palace has a long history of connections to art and artists, which the manager was eager to maintain. Yotkov now conducts his rendering classes under exquisite frescoes by the 18th-century artist Giambattista Tiepolo. Students visit glass artists on the island of Murano, traditional silk factories, and workshops where local artisans create the famous carnival masks. All is geared toward opening the students' artistic boundaries by showing them objects and exposing them to techniques that they might otherwise have seen only in photographs.

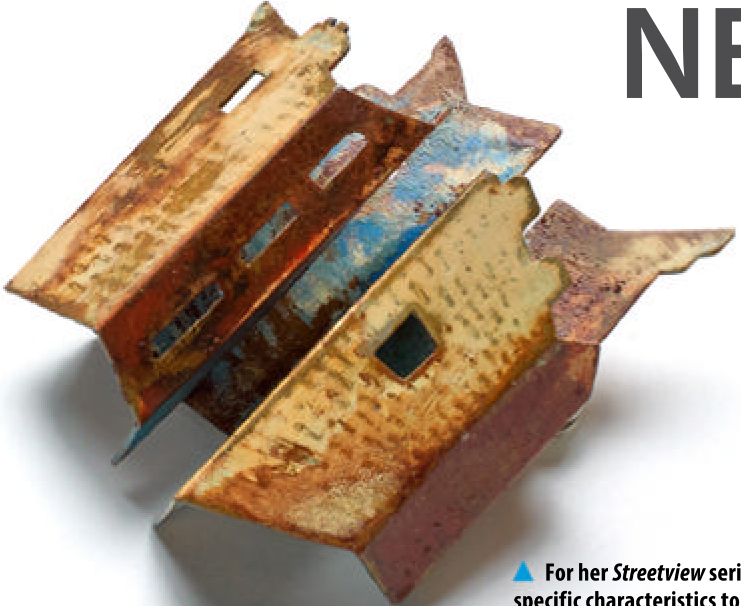
"Besides learning a new skill, the biggest effect these workshops have is that they help people find new passion for travel and adventure," says Yotkov. "They learn to relax and enjoy the moment. They get up and sing or dance with friends they have just met. They learn that it is OK to work and create outside of their own comfort zone and enjoy it, and that the language barriers don't actually exist." ■

**To see workshop schedules and registration information, please visit www.valentinyotkov.com.**

**Below:** This Thracian phiale (libation bowl), on display at the National Museum of History in Sofia, Bulgaria, is astonishing in its detail and execution. 24k gold, 25 cm (roughly 10 in.) in diameter. **Bottom:** While in Bulgaria, students visit an icon painter and restorer who demonstrates gold leaf application techniques. **Bottom left and below left:** An often-overlooked tourism destination, Bulgaria is home to incredible scenery and exquisite architectural details that speak to the region's artistic past.

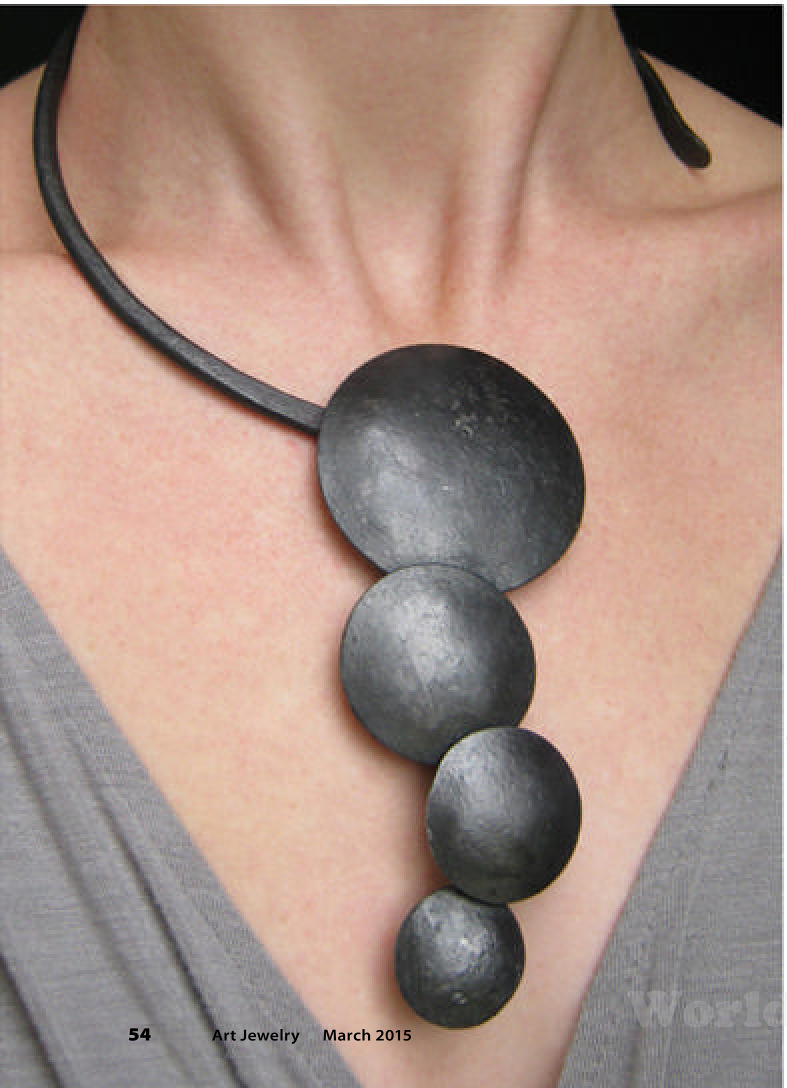


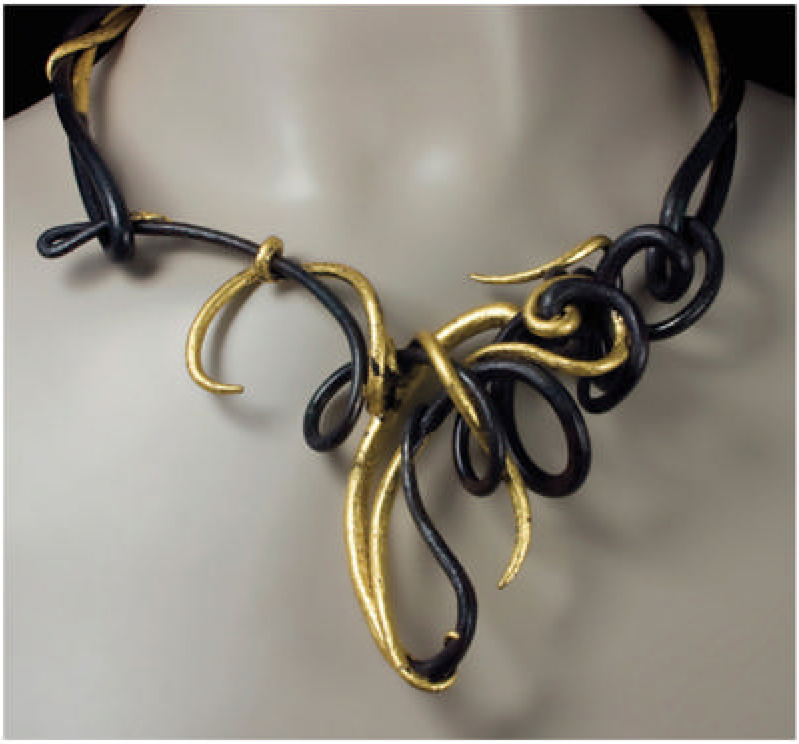
# Artifacts from the NEW IRON AGE



More and more artists are finding the appeal of steel and iron as their metal of choice — and it's easy to see why. Iron is tough and durable (there's a reason "hard as iron" is a cliché, after all) yet lightweight, so it stands up to use and abuse as rings and bracelets, yet is easy to wear. It's also dramatic, especially when combined with high-karat gold. It lends itself to industrial looks, especially with applications of color, preservation of rust effects, or a distressed, heavily textured, or rough-hewn surface. High drama, high endurance, and high impact — all in one darkly seductive metal!

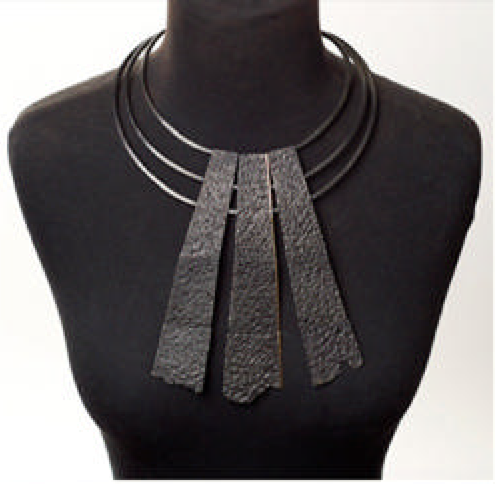
**▲ For her *Streetview* series, Sharon Massey uses steel's specific characteristics to evoke the architecture of rust-belt cities. Layers of paint and rust — not possible in precious metals — suggest the age and history of the buildings. www.sharon-massey.com.**





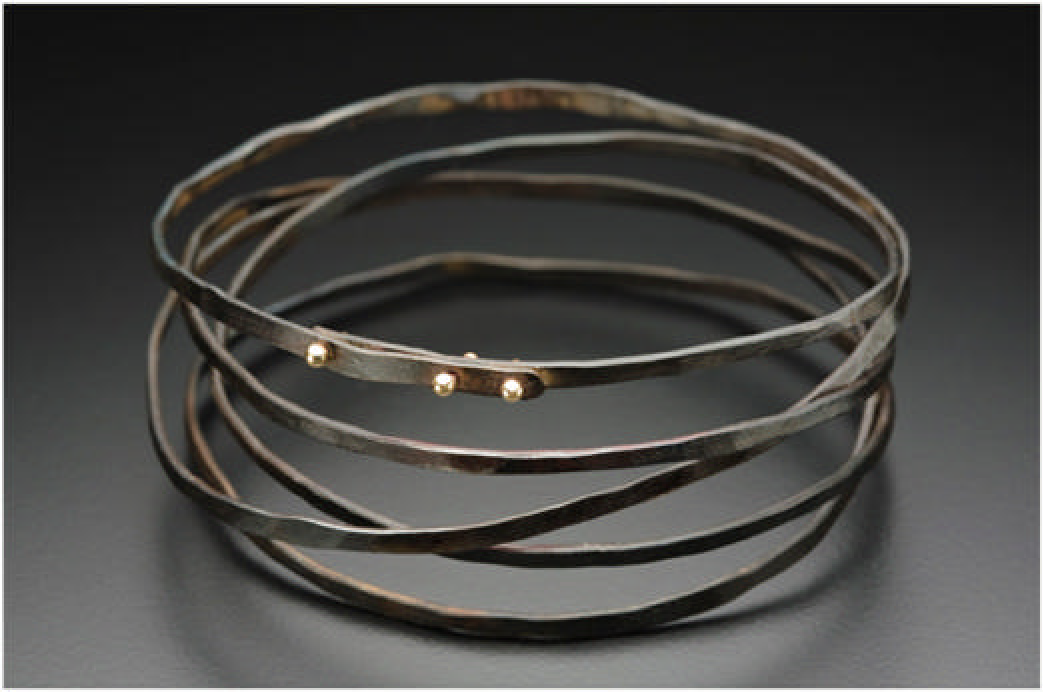
**▲ Valerie Ostenak makes the most of contrasting colors by combining blackened steel with 24k gold for this entwined neckpiece, part of her *Old World Vines* collection. www.valerieostenak.com.** Photo by Valerie Ostenak.

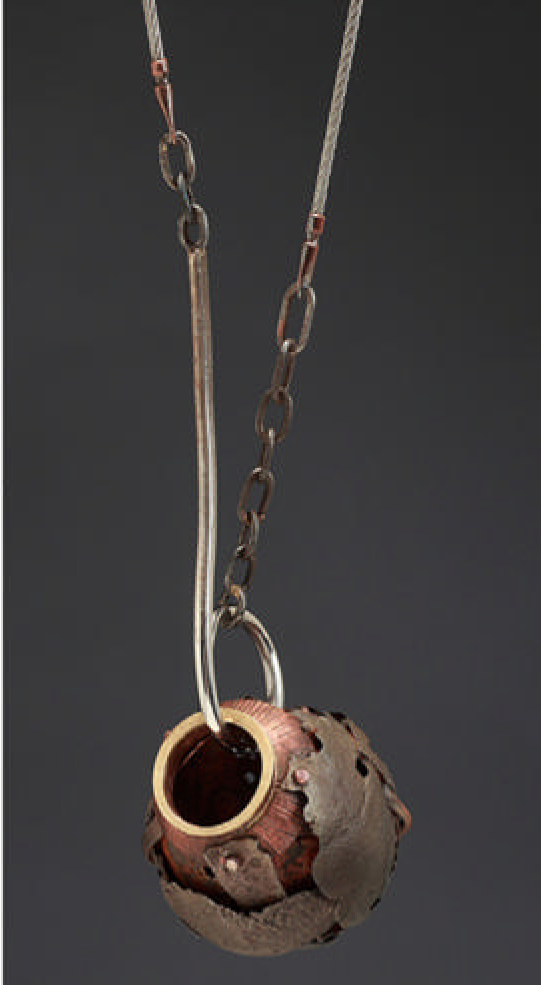
**◄ Becky Little's background is in blacksmithing; as well as sculptural works, she also creates dramatic pieces of jewelry, such as her *Moon Over Water II* neckpiece. www.dragonflyforge.ca.** Photo courtesy of Becky Little.



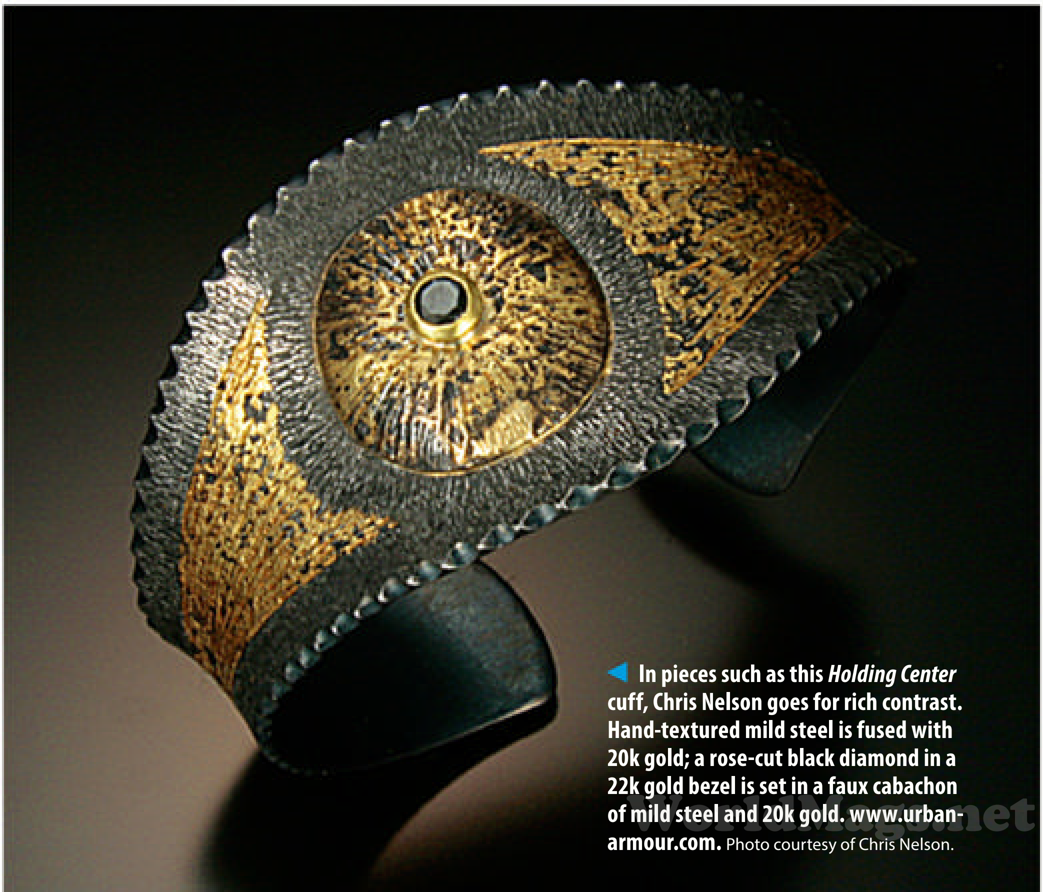
▶ **Jaclyn Davidson's work embraces the beauty of steel with only minimal embellishment. In this neckpiece, a slender thread of 20-gauge (0.8 mm) gold wire edges one of the hinged vertical elements. www.jaclyndavidson.com.** Photo courtesy Jaclyn Davidson.

▼ **In her *Mommy Dearest Bracelet,* Peg Fetter uses 14k yellow gold for both aesthetics and function — the balled-up rivets complete the coil of wire and provide a contrasting splash of color. www.pegfetter.com.** Photo by Don Casper.

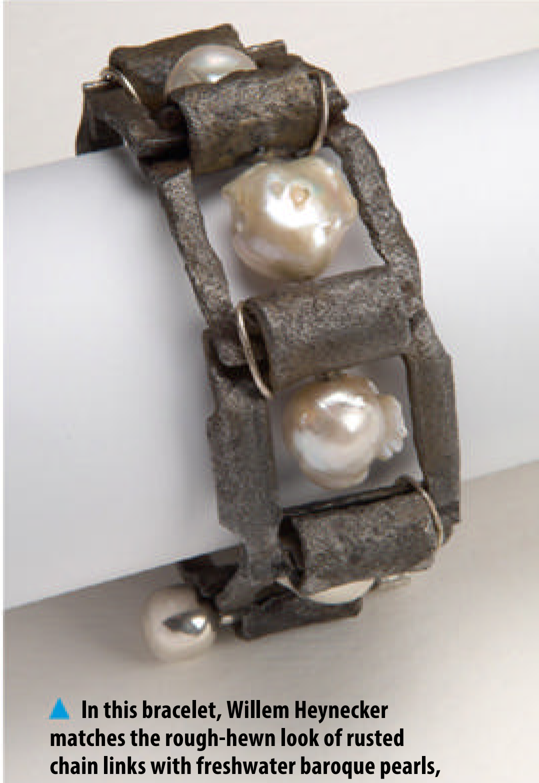




▲ **Andy Cooperman uses both scrap steel sheet and forged stainless steel for this neckpiece. Also with 18k gold and brass. www.andycooperman.com.** Photo by Andy Cooperman.



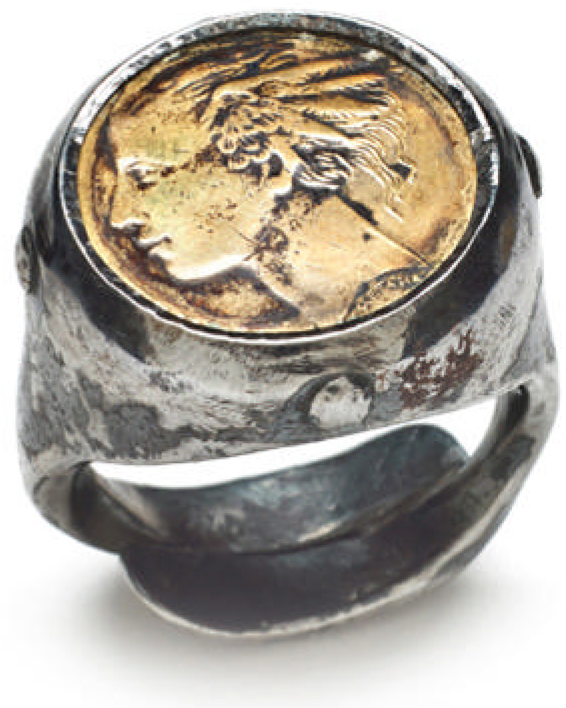
◀ **In pieces such as this *Holding Center* cuff, Chris Nelson goes for rich contrast. Hand-textured mild steel is fused with 20k gold; a rose-cut black diamond in a 22k gold bezel is set in a faux cabachon of mild steel and 20k gold. www.urban-armour.com.** Photo courtesy of Chris Nelson.



▲ **In this bracelet, Willem Heynecker matches the rough-hewn look of rusted chain links with freshwater baroque pearls, then added sterling silver for accents and the clasp. www.why-creations.com.** Photo by Victor France.

# Forge STEEL PIPE to Create a Captured-Coin Ring

**by János Gábor Varga**



*Abuse the rules of blacksmithing and fuse them with the tricks of the jewelry trade to create a modern relic.*

On larger-scale works, a blacksmith can forge the iron while it's hot — on a smaller scale, by the time you step to your anvil with a ring and grab your hammer, the steel is already black-cold. So when making iron jewelry, you must work the metal as if it was silver: by repeated annealing between forging, bending, twisting, etc. And, more important than that, you must treat it with the same attention to detail as when working with gold.

**Use steel brushes (*above*) to remove the oxidized patina on steel to create a mottled effect. This ring, made from steel pipe and an old Italian Lira, is 26 x 24 x 21 mm (1 x $^{15}/_{16}$ x $^{13}/_{16}$ in.).**

**BASICS & VIDEOS**

| Learn fundamental techniques in these bonus tutorials: | B | 🎥 |
|---|---|---|
| How to file | | ● |
| Sanding | ● | |
| Drilling through metal | ● | ● |

**B Basics, *page 73***
**🎥 Videos, www.artjewelrymag.com/videos**

**Lay out the ring.** Lay out the ring according to the **Figure** (*below*). Divide a 21 mm (13⁄16-in.) outside diameter (OD), 2.25 mm wall-thickness, mild-steel pipe into visually equal quadrants. Use a fine-tip permanent marker to mark the quadrants (*vertical blue dotted lines in the Figure*).

**NOTE:** You can use calipers, but I prefer to eyeball the measurements. This makes the imperfections harmonic, and the final piece will have an even level of accuracy.

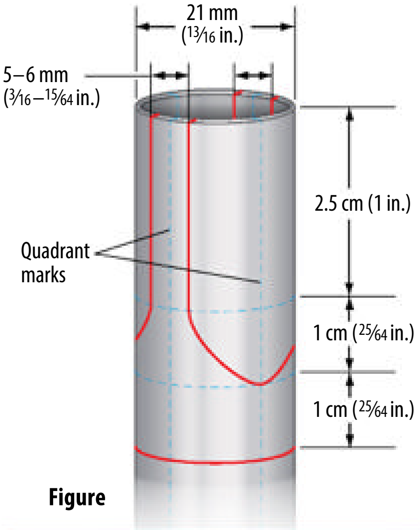
Mark two vertical lines 5–6 mm (3⁄16–15⁄64 in.) apart and 2.5 cm (1 in.) long centered on one of the quadrant marks for the shank. Repeat on the opposite side of the tube (*vertical red lines*).

**NOTE:** The shank can be as wide as you feel would be comfortable, but it must be narrow enough to twist later.

At the end of the shank lines, draw a line around the circumference of the pipe. This is where the ring's shoulder will start. Draw another line around the circumference of the pipe 1 cm (25⁄64 in.) below the first line. This is where the ring's shoulder will end (*horizontal blue dotted lines*).

Draw a third line 1 cm (25⁄64 in.) below the second. This is the top of the ring where you'll remove it from the pipe (*red horizontal line*).

Draw an evenly curved line that starts at one shank line, reaches the lowest point of the curve where the quadrant mark and the second line intersect, and ends on the nearest shank line on the opposite side of the pipe (*curved red lines*). Repeat to mark the second side of the pipe.



**Figure**

**Cut the ring shank.** Secure the pipe in a vise, and use a hacksaw to make a vertical cut on the outside edge of each ring-shank mark (*the red lines are the cut lines*). Stop before you reach the shoulder of the ring **[1]**.

Loosen the vise, and turn the pipe over so that the ends of the shank point down and the curved marks on one side of the ring shank are oriented vertically. This orientation gives you better control and makes it easier to maintain a straight cut.

Use the hacksaw to cut as close as possible to the curved mark until the blade meets the ring-shank cut you made earlier **[2]**. Since you can't cut a curve, cut close to the line and refine it later to remove the excess metal. Go slowly, and cut on the outside of the line, since you can't add more material if you cut away too much.

Readjust the pipe in the vise, and repeat to cut along the second curved mark on the other side of the ring.

**File the ring shank.** Secure the pipe horizontally in the vise, and leave the ring portion of the pipe extending from one edge of the jaws. Use a large, half-round file to file one of the cut edges of the ring to create a smooth curve from the shoulder to the shank **[3]**.

## materials

- Mild-steel tubing: 21 mm (13⁄16 in.) outside diameter (OD), 2.25 mm wall thickness; approximately 4.5 cm (1¾ in.) plus extra for clamping in the vise
- Coin: smaller than the pipe OD, larger than the pipe ID
- Mild-steel or hardened steel (that's been annealed) nails: approximately 1 mm diameter, 4

### toolbox, page 76

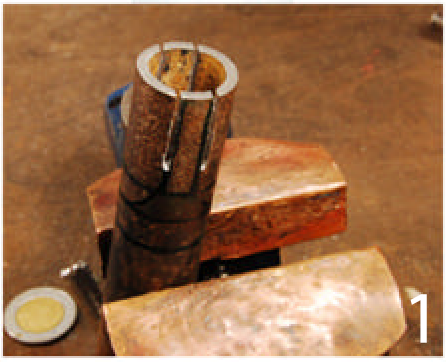
- Hammering

### additional tools & supplies

- Calipers
- Large vise
- Hacksaw
- * Files: large and small half-round, round hand file (optional); diamond needle files
- Plumber's or jeweler's torch
- Flex shaft/pendant motor
- * Flex shaft accessories: diamond burs (including a 3 mm [⅛-in.] diamond cylinder), sandpaper roll, silicone burs, steel brush
- * Sandpaper, 400-grit
- Steel ring mandrel or other ring-sized steel mandrel
- Pliers: parallel jaw, half-round forming
- Soldering board (optional)
- Handheld drill with rotary grinding file
- Dividers
- Center punch
- Drill bit smaller than the nail diameter
- Multi-purpose oil and water in a dish (optional)
- Jeweler's saw with a coarse blade
- Clear packing tape (optional)
- Hard sealing wax

* Dedicated to steel use only

Find out where to buy supplies, *page 79*
See Safety Basics, *page 76*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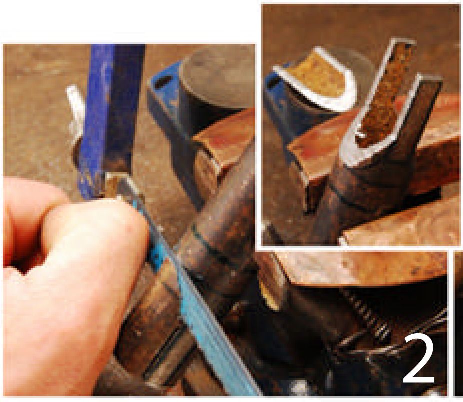
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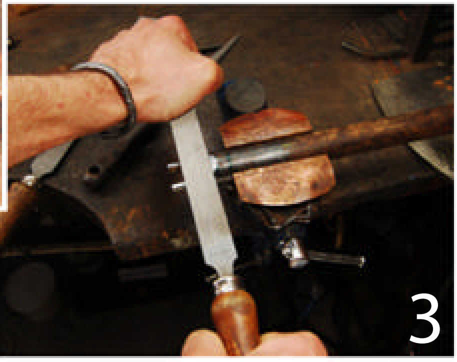
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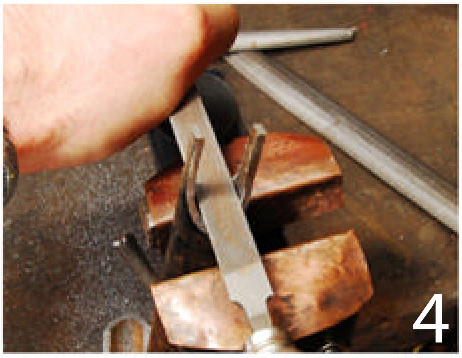
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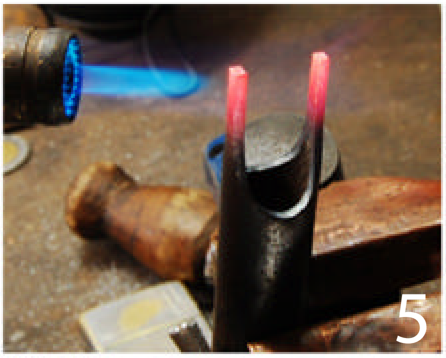
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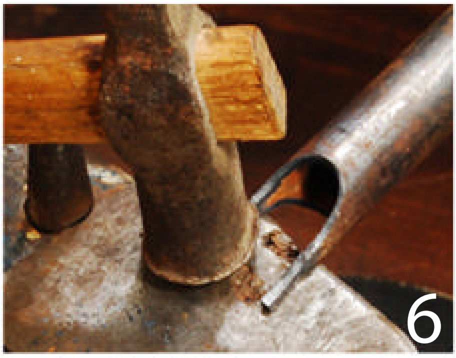
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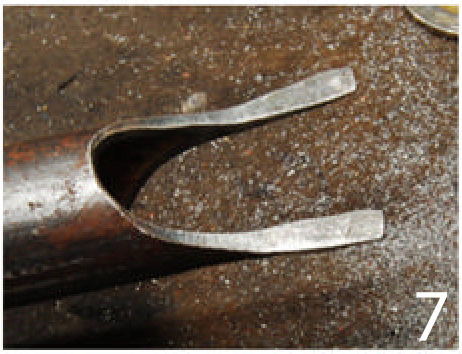
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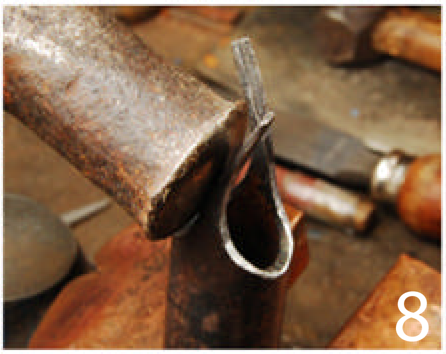
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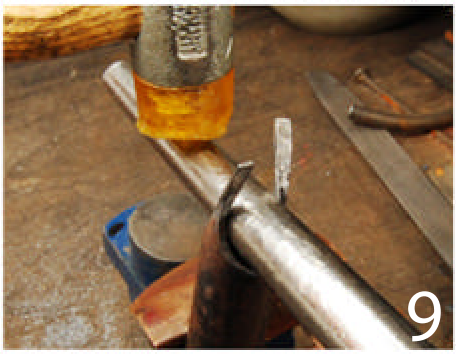
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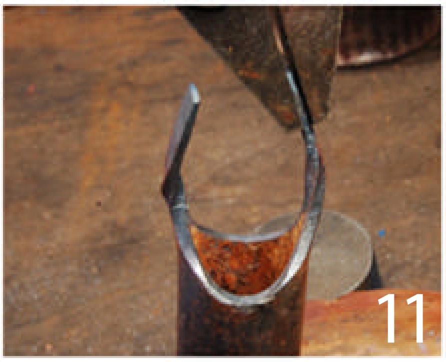
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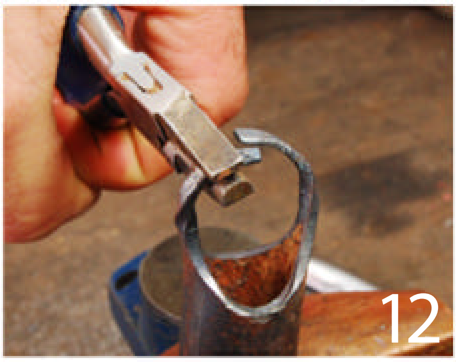
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Turn the pipe 180° in the vise, and repeat to file the other side of the ring. Make sure the two sides are symmetrical.

Turn the pipe in the vise so the shank ends point up, and use a smaller half-round file to file the inside of the ring to remove any sharp edges and make it symmetrical **[4]**.

**Forge the ring-shank ends.** Make sure the pipe is secure in the vise, and use a plumber's or jeweler's torch to heat the shank ends until they're cherry red **[5]**.

Move the pipe to an anvil or heavy steel bench block, and use a forging hammer to forge the ends of the shank flat in a plane perpendicular to the pipe **[6]**.

**NOTE:** I suggest a 300–400 g (10.5–14 oz.) German hammer. It's heavy enough, but easy to control for this scale of work.

Use diamond needle files, diamond burs in a flex shaft/pendant motor, and 400-grit sandpaper to remove all the burrs from the ends of the shank **[7]**.

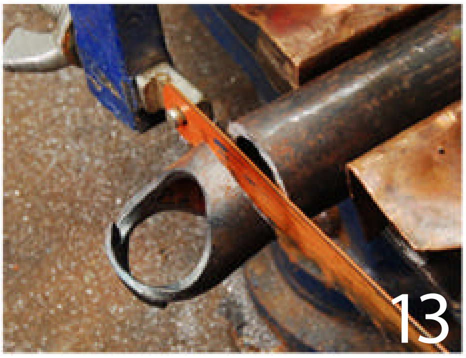
**Offset the ring-shank ends.** Re-secure the pipe in the vise, heat the ring shank ends to a cherry red, and use the hammer to offset the ring shank ends from each other slightly **[8]**.

**Round out the shoulder of the ring.** Reheat the pipe, and place a ring mandrel or other ring-sized steel mandrel between the ring shank ends.

**NOTE:** If you don't keep a ring mandrel around for punishing jobs, find something else that will work. The steel can be rough on your tools, so you don't want to use your best mandrel.

Hold the ring mandrel in the opening of the ring at a point on the mandrel slightly smaller than the desired ring size, and strike the end of the mandrel downward with a plastic mallet **[9]**. This forces the shoulder of the ring to round out. You can't do this after you've cut the ring from the pipe because the head of the ring would deform. Strike the wide end of the mandrel to continue rounding the form **[10]**.

**Form the ring shank.** Secure the pipe in the vise so the shank ends point up, and heat them again. Use parallel-jaw pliers to twist each shank end 90° **[11]**. Make sure to twist them the same direction so that they are even and the forged ends are parallel to the sides of the pipe. Continue to heat the pipe, and use half-round forming pliers to bring the ends toward each other until you form a closed shank **[12]**.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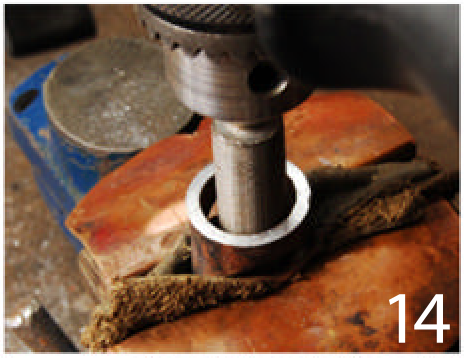
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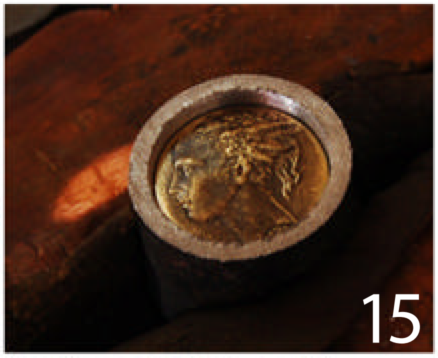
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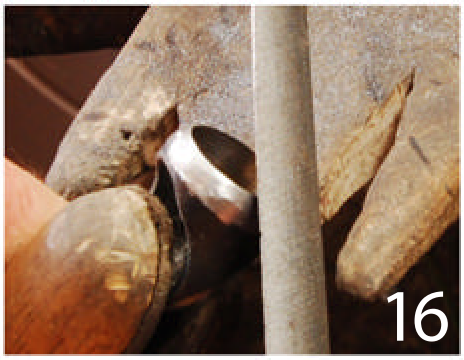
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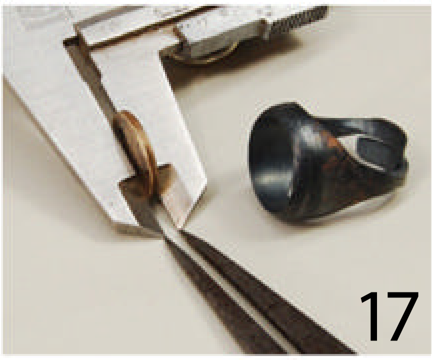
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Use the forging hammer to forge the shank around the ring mandrel evenly until it's round and symmetrical. It's better to close it tighter than you need it and then open it up, than to have it be too big.

**NOTE:** You can size up the ring while it's black-cold if it is well annealed. If not, heat it and forge it while it's red-hot.

After you establish the general shape and size of the ring, you can forge the band to be wider than the head of the ring (diameter of the pipe), if desired.

**Cut the ring from the pipe.** Secure the pipe horizontally in the vise, and then use the hacksaw to cut through the pipe at the top mark **[13]**. File the end until it's flat, but don't worry about making it smooth: You'll refine it later.

**Choose a coin.** Choose a coin to set into your ring. The coin should be slightly larger than the inside diameter of the pipe, but smaller than the outside diameter.

**NOTE:** I used an old Italian Lira, and removed the exterior band because I wanted to use only the head of Mercury. If you're not sure what type of metal your coin is and if it will withstand being heated to red-hot, test it by placing it on a soldering board and using the torch to heat it until it glows. If it melts, choose a different type of coin. You'll heat the ring after it's fully assembled, and you don't want any surprises after you've set the coin.

Check out "Artifacts from the New Iron Age" (*page 54*) for examples of artists using steel and iron to make jewelry!

**Grind the inside of the ring to accept the coin.** Secure the ring in the vise with leather or cloth to pad the vise's jaws, and use a rotary grinding file in a handheld drill to grind the inside of the top of the ring **[14]** until the coin can drop into the pipe 1–1.5 mm (approximately 1⁄16 in.) **[15]**.

**NOTE:** If you don't have a rotary grinding file, use a round hand file instead.

Remove the coin from the pipe and use the flex shaft with a sandpaper roll or diamond burs to refine the setting.

**Bevel the top edge of the ring.** Remove the ring from the vise, and hold the shank in a ring clamp. File the circumference of the top of the ring to create a thin bezel that will be easy to press down onto the coin **[16]**. File it to knife sharpness, then file it back down to remove the sharp edge.

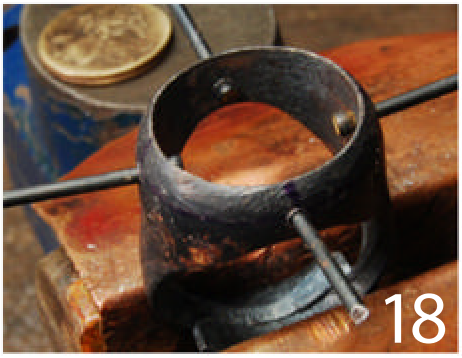
**Add the riveted seat for the coin.** Use calipers and dividers to measure the thickness of the coin **[17]**. Insert the coin into the ring and measure the distance between the top edge of the bezel and the bottom of the coin. Mark this combined measurement around the outside of the ring. Mark four evenly spaced points along the line, and use a center punch to make a divot at each mark. Be accurate: The holes must be at the same level.

Measure the diameter of your nails (mine are approximately 1 mm), and drill a hole at each divot using a drill bit slightly smaller than the nails. When drilling steel, drill slowly and apply as much pressure as you can without risking the bit breaking. If necessary, use water with a few drops of multi-purpose oil in it to cool the bit, or just take breaks while drilling to let the steel cool. If you drill too quickly, the drill bit may overheat and lose its temper, requiring it be replaced.

### the steel i use

For most of my work, I use mild steel, a low-carbon steel used mainly by blacksmiths. It used to be applied for water plumbing in some European countries, but it is still in use for various construction works, such as railings.

Another great quality of mild steel is that it's nearly half the weight of the same volume of silver, so you can create more lightweight pieces.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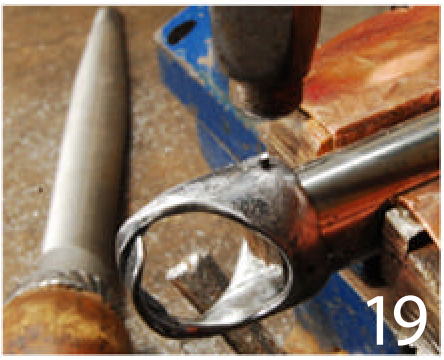
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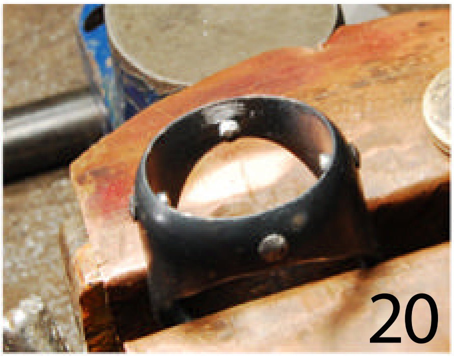
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Process photos by János Gábor Varga.

## iron
## care & use

Iron jewelry needs care, just like silver jewelry does. Not being a precious metal, it is more reactive with the environment and with you. When you first wear a piece of mild-steel jewelry, it may leave a mark on your skin. But after a while, your piece will become "oxidized to you" and will no longer leave a mark. As it absorbs natural oils from your skin, it will form a protective layer. If you get ill, it will probably leave a dark mark on your finger again due to the changed acidity of your skin (just think of it as your jewel is worrying about you). When you swim in saltwater or chlorinated water, the same thing happens, and you must rinse it with fresh water and wipe it immediately. I think it's nice to live together with such a strong and sensitive metal.

Iron is a beautiful material. You can wear it all the time: Take a shower, cook, wash the dishes, visit a sauna, or sleep! It's not stainless, but in the conditions we maintain on our skin (dry and clean), it stays perfect for ages. The main thing to remember is that if you do get it wet, you must wipe it dry, as you do your hands. Don't let it air dry, or it will rust.

**NOTE:** If the holes aren't perfectly aligned around the circumference of the pipe, you can adjust them slightly by enlarging the holes in different directions.

Anneal four nails. Use a jeweler's saw with a coarse blade to trim the nails so that they fit into the holes with the heads inside the ring **[18]**. When the heads are flush against the inside wall of the ring, cut off the ends of the nails so that approximately 2 mm (5⁄64 in.) extends from the ring.

Slide the ring onto the ring mandrel, and use a 50–100 g (1.8–3.5 oz.) hammer to flare the ends of each nail **[19]**.

Use needle files and a sandpaper roll or silicone burs in the flex shaft to remove any burrs. Finish with a steel brush.

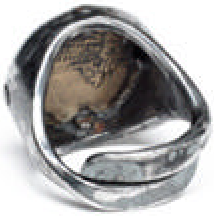
**Refine the coin's seat.** Use a 3 mm (1⁄8-in.) diamond cylinder bur in the flex shaft to grind off some of the heads of the nails inside the ring **[20]** until the coin sits level in the ring and doesn't wobble. This will correct for misaligned drilled holes.

**Set the coin in the ring.** Secure the ring in the vise, set the coin in the ring, and use the hammer you used to rivet the nails to close the edge of the bezel over the coin. The only unforgivable mistake is striking the coin, so be careful! To prevent stray strikes and scratches, cover the coin with a few layers of clear packing tape. If necessary, anneal the ring while setting the coin.

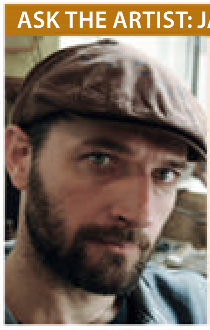
If you need to refine the shape of the ring, don't forge the shank ends or you will mess up the alignment of the rivets and possibly bend the coin. Use only files and sandpaper to refine the ring at this point.

**Finish the ring.** Heat the ring to a bright orange glow to build up an oxidized patina. Use steel brushes (*page 56*) in the flex shaft to remove as much of the patina as desired. (I think a good balance of dark and polished areas is the most decorative.)

**Seal the joins in the ring.** Hold the ring in a vise or tweezers, and warm it with the torch. Rub sealing wax onto the piece. Once it is covered, heat the piece until the melts into the gaps (use good ventilation!). Let it solidify, and use steel brushes in the flex shaft to remove excess wax. If you don't have good access with the brush, use a toothpick to scrape out the rest.


Ring shown actual size

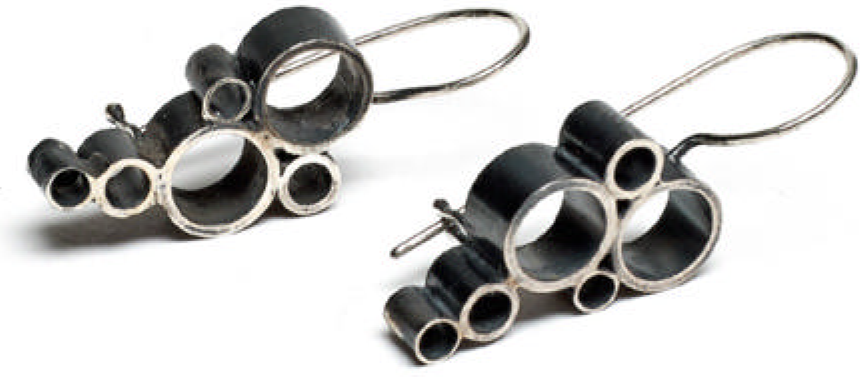
### ASK THE ARTIST: JÁNOS GÁBOR VARGA



**If you could study with one artist (living or dead), who would you choose?**

"If I can choose only one artist, I would like to learn from Ford Hallam. He is just as humble as he is tough, just as crazy as wise. I think it must be also a lot of fun to learn from him, and to work with him. And I think in our job, fun is essential. Since he moved to Europe, I hope I can visit him sometime!"

Contact: www.blindspotjewellery.com



# Graduated Tube Earrings

**by Marthe Roberts/Shea**

I used three different diameters of tubing for my earrings. If you don't mind sawing, you can use as many sizes as you'd like. Not only will the design be more interesting the more sizes of tubing you use, but because you're using tubing instead of metal sheet, the earrings are also lightweight!

## materials

- Sterling silver tubing: thick-walled, three different diameters, 1½ in. (38 mm) each
- Sterling silver wire, 20- or 22-gauge (0.8 or 0.6 mm), amount varies

## toolboxes, *page 76*

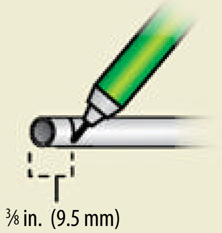
- Sawing/Piercing
- Soldering/Annealing
- Finishing

## additional tools & supplies

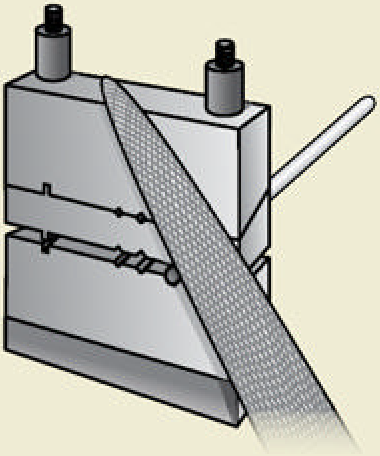
- Miter-cutting vise
- Flush cutters
- Diamond bur (optional)
- Pliers: parallel-jaw chainnose, roundnose

Find out where to buy supplies, *page 79*
See Safety Basics, *page 76*

## TUBE ASSEMBLY



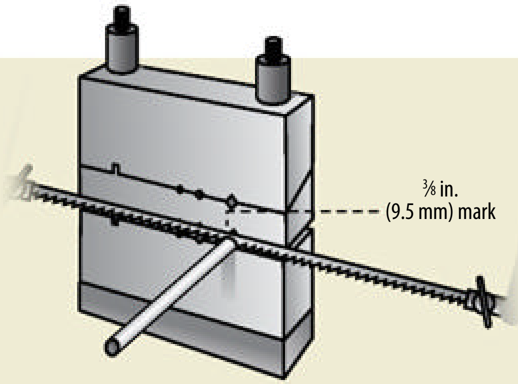
1 Use a fine-tip permanent marker to mark a line on a piece of thick-walled sterling silver tubing ⅜ in. (9.5 mm) from the end.



2 Place the tubing in the V-groove nearest the size of the tubing in a miter-cutting vise. The end of the tubing should barely crest past the surface of the vise. (If the end of your tubing is already flush, skip to step 3.) Tighten the knurled nuts so that the tubing is stationary.

Use the flat side of an inexpensive #2-cut half-round file to file across the face of the tubing until it's flush with the face of the vise. Don't worry about filing on the surface of the vise … it's made for this very purpose!

**TIP:** A hardened-steel miter-cutting vise will damage your files, so always use inexpensive files when filing against the surface of the vise.



3 Loosen the nuts, and position the tubing so that the vise's jaws are directly on the ⅜-in (9.5 mm) mark with the bulk of the tubing exposed. There should only be a small bit of tubing inside the vise.

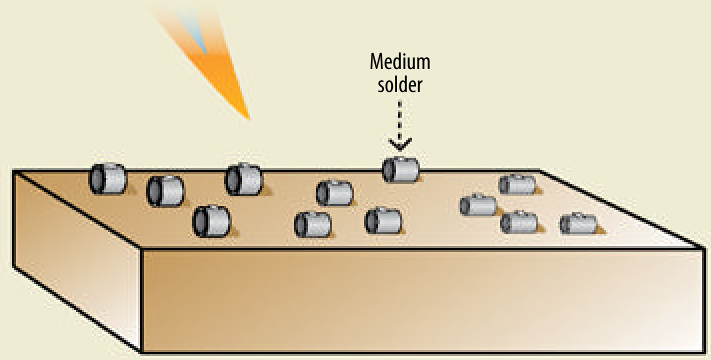
Tighten the nuts, and then use a jeweler's saw with a #2 blade to cut the tubing at (or close to) the marked line. File the surface of the tubing flush to the surface of the vise.

4 Repeat to cut the remaining pieces of tubing you'll need for your design. I cut four pieces each of the large, medium, and small tubing so that there would be two pieces of each size of tubing for each earring.

**BASICS & VIDEOS**

| Learn fundamental techniques in these bonus tutorials: | B | 🎥 |
|---|---|---|
| How to file | | ● |
| Sweat soldering | ● | ● |
| Pickle basics | ● | ● |
| Drilling through tubing | | ● |
| Balling the end of wire | ● | ● |
| Polishing metal | ● | |

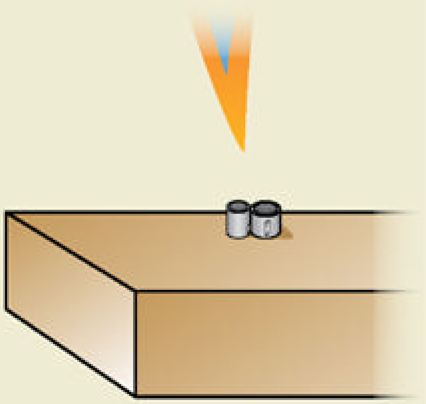
**B Basics, *page 73***
**🎥 Videos, www.artjewelrymag.com/videos**

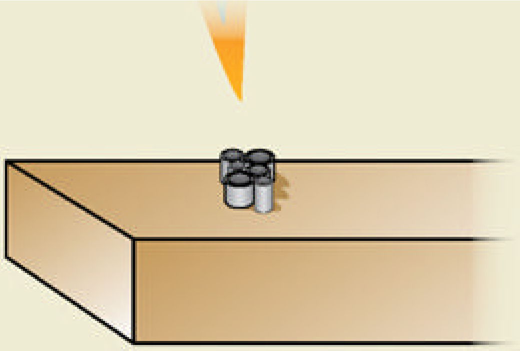


5 Place all of your tubes on their sides on a soldering pad. Apply flux, and place a small pallion of medium solder on each tube. Light your torch, and begin heating the tubes until the solder flows onto and partially around the tubes. Keep the flame elevated at first, and move in closer to the tubes only if the solder doesn't flow. I solder this way because tubing is hollow, and will overheat and melt a lot faster than flat sheet!

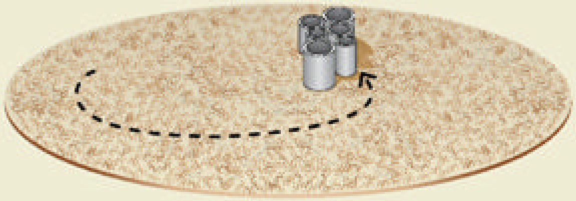
Quench, pickle, rinse, and dry the tubes. Set two of each size of tubing aside.

6 Place one of the large tubes on its end on the soldering pad with the soldered side toward you. Place a medium tube against the large tube with the solder on the medium tube between both pieces. Flux both tubes, and, keeping your torch high, heat them until the solder flows. Pickle, rinse, and dry the soldered tubes.





7 Continue positioning the tubes with the sweat-soldered sections facing other tubes, and solder them together until you have one piece made up of two of each size of tubing. Because the tubes are small, the heat from the torch will cause the solder to flow around the tubes and connect them to each other. Quench, pickle, rinse, and dry the assembly.

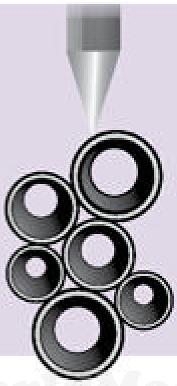


8 Tape a sheet of 220-grit sandpaper onto a flat surface, and sand one edge of a tube assembly in a circular motion until the tubes are flat and level. Repeat to sand the opposite edge of the assembly.

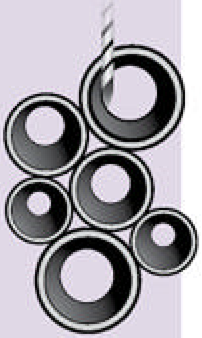
9 Repeat to construct a second tube assembly that is mirror-image to the first. Set one tube assembly aside.

## EAR WIRE AND CATCH

10 Decide how you want your earrings to hang, and use a scribe to make a divot in the side of the tubing where you want to place the ear wire. (I decided to use the visual center of the earring.)

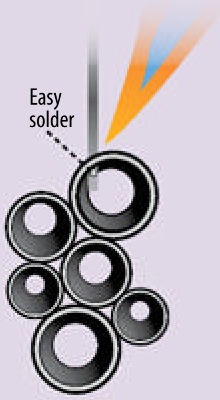


11 Determine which gauge of sterling silver wire you want to use for your ear wires, and use an appropriate-size bit to drill a hole at the divot. (Use a #67 [0.032-in/0.81 mm) bit for 20-gauge [0.8 mm] wire; #72 [0.025 in./0.64 mm] for 22-gauge [0.6 mm] wire.)



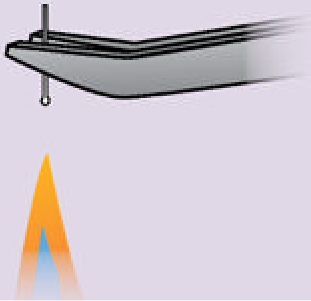
12 Thread a wire through the hole, and make sure that it's positioned correctly for how you want the earring to hang. Place a small pallion of easy solder on the wire inside the tubing and against the inside wall of the tubing.

Heat the assembly from the outside of the tubing to draw the solder out and into the hole. Be careful not to melt the wire. Pickle, rinse, and dry the assembly.



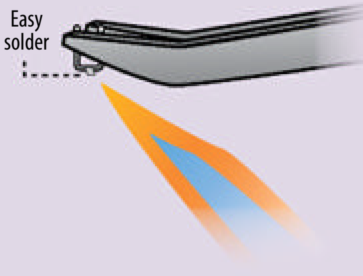
Use flush cutters to trim any excess wire inside the tubing. Use needle files or a diamond bur in a flex shaft to remove any extra solder on the wire or inside the tube. Make the inside of the tube as smooth as possible.

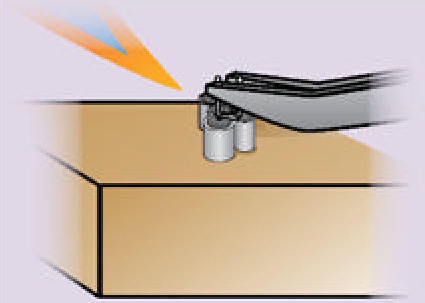
13 Cut a ¾-in. (19 mm) piece of 20- or 22-gauge (0.8 or 0.6 mm) sterling silver wire. Hold the wire vertically in a pair of cross-locking tweezers. Gently heat the wire from below until a tiny ball forms on the end of the wire. Remove the heat, turn the wire upside down, and heat it again to form a ball on the other end. Pickle, rinse, and dry the wire.



14 Use parallel-jaw chainnose pliers to bend the wire into a squared-off U-shape. Make sure the balled-up ends are even.

Hold the U-shape with the tweezers, apply flux, and flow a small amount of easy solder onto the bottom of the U-shape.

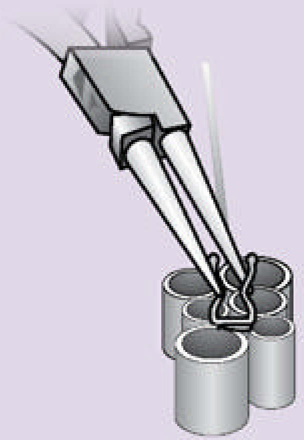




15 Lay the tube assembly face-down on a soldering pad. Lower the bottom of the U onto the surface of the tubes at your desired location.

**NOTE:** Where you place the catch is up to you. Some may want it closer to the top of the earring; others prefer it near the bottom. Just make sure the opening is aligned with the ear wire so that it can be latched in place later.

Hold the wire in place, and heat the assembly until the solder flows. Pickle, rinse, and dry the assembly.



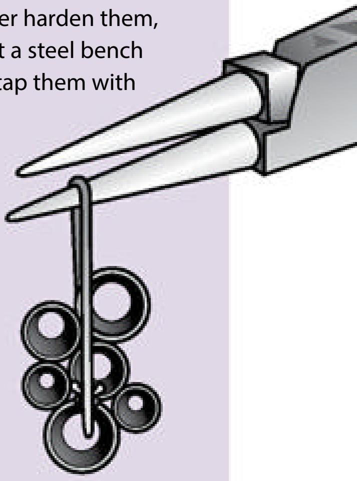
16 Use roundnose pliers to pinch the two legs of the catch together in the center, creating a "waist." This should be tight enough to trap the ear wire and keep it in place while the earring is being worn.

Use a file and a pink, extra-fine, flat-edge silicone polishing wheel in a flex shaft to polish and round the end of the ear wire.

17 Determine how long you want the ear wire to be, and use the roundnose pliers to gently bend the ear wire so that it loops downward toward the catch. Keep bending it until the end extends approximately ¼ in. (6.5 mm) below the catch.

**NOTE:** The ear wires are somewhat hardened by bending them, but if you want to further harden them, hold them against a steel bench block and lightly tap them with a rawhide mallet.

Repeat to add the ear wire and catch to the second tube assembly.



Illustrations by Marthe Roberts/Shea.

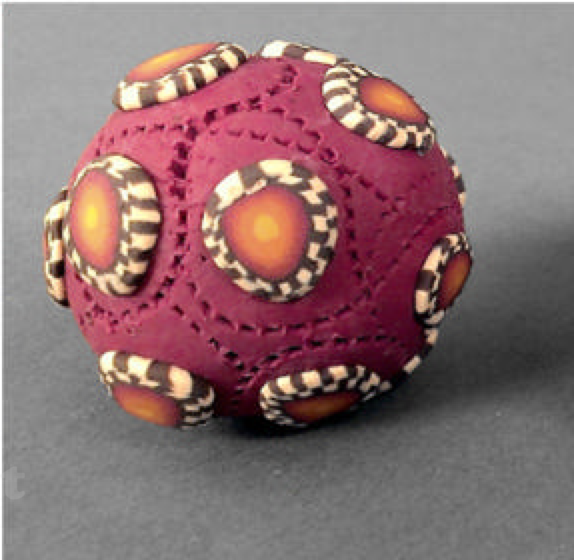
18 Patinate the earrings (I used Midas Black Max) and, once they're dry, use a 1¼-in. (32 mm)-diameter, 16-ply, tight-weave, fine muslin buffing wheel and polishing compound to polish the rims of the tubes, leaving the inside and outside of the tubes black.

*Marthe Roberts/Shea's work has been shown in galleries nationally and has appeared in* Art Jewelry's Gallery. *She teaches jewelry making at the Cheltenham Center for the Arts (Cheltenham, Pa.) and the Main Line Art Center (Haverford, Pa.). She is also the president of the Pennsylvania Society of Goldsmiths. You can reach her via her website, www.jewelrybymars.com.*

**Spotlight on Education**

# New Clay on Campus

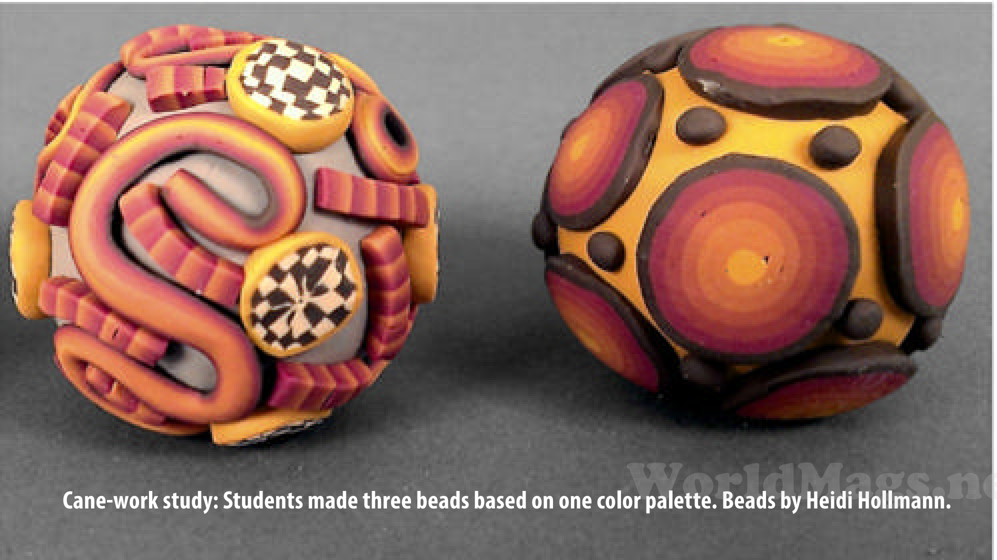
Students gather around a table for a critique of their final projects.



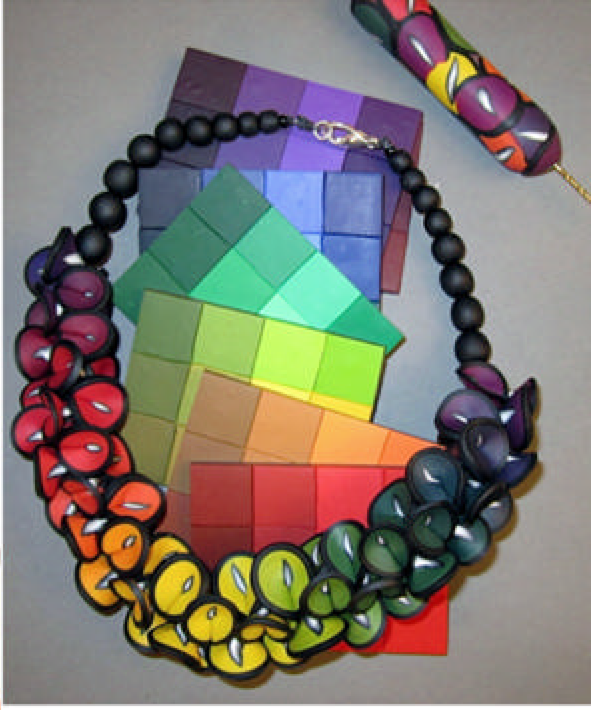
## *A modern art form breaks new ground with the first-ever college-level polymer course.*

**by Annie Pennington**

What began as a goal put forth to the polymer community at large during the 2011 Polymer Symposium in Racine, Wis. was brought to fruition in 2014 by the hard work and dedication of painter and instructor, Diane Levesque. After visiting the exhibition, *Terra Nova: Polymer Art at the Crossroads* at the Racine Art Museum, Levesque took it upon herself to expand her polymer skillset and work with Carthage College in Kenosha, Wis. to begin the country's first full-credit, college-level polymer course.



**Cane-work study: Students made three beads based on one color palette. Beads by Heidi Hollmann.**



**▲ Student Vicki Lumbert's version of Lindly Haunani's *Pinched Petal Necklace* (and custom tool!).**

## Getting polymer into college

A painter and educator by trade, Diane Levesque has worked with polymer most of her career, predominantly making dolls and figurines. When she chose to embark on this mission of launching a college-level polymer course, she knew she needed to expand her polymer skillset even further in order to effectively instruct a classroom full of eager students. So, she enrolled in a workshop with Lindly Haunani at Arrowmont School of Arts and Crafts in Gatlinburg, Tenn. She returned from the class engergized and even more determined to bring polymer into a college setting. This would be one more step toward polymer being viewed as a serious artistic medium alongside sculpture, ceramics, and other traditional craft media. Levesque has taught painting, drawing, and illustration at Carthage College in Kenosha, Wis. for years, so she knew what she had to do.

Teaching a credited class at the college level is nothing like teaching a workshop; the entire process must be transparent. Specific fine-arts requirements must be met. Critiques of student work must follow each completed project assignment. The information learned in the course must be able to be translated into other fields.

Despite all the hoops she knew she'd need to jump through when beginning a course with no precedent, one thing struck Levesque as the perfect entry to proposing

▲ **Students show off their first polymer project: a black-and-white covered Altoid tin.**

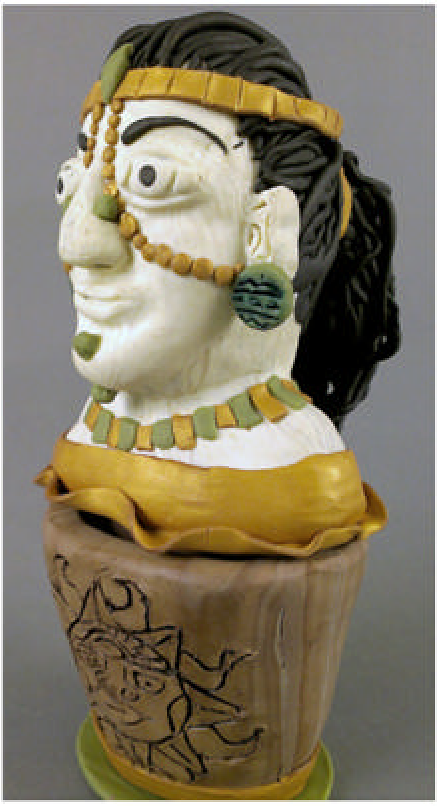
a polymer course. Carthage's curriculum has long leaned heavily on color theory: What better way to present the class than as another way to learn about color? Polymer is moldable color, so the students would be exposed to a new way of mixing color, in contrast with, but similar to painting or ceramic glazes. Polymer test tiles = ceramic glaze test tiles = paint color charts: they're all the same thing translated into different media. How could they say no?

She pitched her proposal to the school, and waited for the results.

## Clay troubles

In May 2013, the course was approved and scheduled for the winter semester of 2014. It was really happening! Levesque arranged for the students' materials to be delivered, and chose the textbook for the course. Everything was on track, and the class started filling up — Levesque's own energy and excitement proved a strong draw. And then, winter struck. Anyone in the Midwest will recall the horrific winter of early 2014. Due to the early snowstorms, the clay shipment was delayed … the students wouldn't receive their materials until three weeks into the course! Levesque was faced with an impossible question: How can you teach a polymer class with no clay?

She hit up every craft store in the area to buy as much black and white clay as she could and redesigned the first class project. The students would be asked to cover an Altoid tin. She still taught the students basic caning, forming, and sculpting techniques including the Skinner blend, accordion-fold, and checkerboard, but because they were limited to black, white, and values of the two mixed together, they didn't have to worry about color.



◀ **Levesque encouraged the students to explore sculptural forms in addition to jewelry. This *Mayan Figure Jar* is Melanie Grady's final piece for the faux techniques assignment.**

In retrospect, Levesque feels, this was an unexpected benefit. Learning a new material and techniques separate from the huge variable of color mixing allowed the students to focus on initial skill building and technical exploration without immediately getting bogged down in color theory. Jumping right into working with the wide array of colors available in polymer without a solid understanding of color theory would likely have resulted in distracting color combinations that would detract from the work. Starting with just black and white turned out to be the perfect introduction to polymer for the students, most of whom were not art majors, but students in other fields of study who needed to fulfill their fine-arts requirement. The reformulated project was such a success that Levesque intends to continue teaching it as the introductory project in future classes.

Levesque also put a call in to Maggie Maggio about her clay-delivery problem. Maggie to the rescue! Maggio boxed up some of her scrap clay for the students to use. Not only did the students now have material to work with, but these discarded "scraps" from a polymer master were not your ordinary toss-able bits. By digging through the scrapped canes and seeing the color combinations, the students were able to use this generous gift to find treasures within the trash.

When the official clay finally arrived, the students were able to apply the techniques they had already learned to the fresh, colored clay, and were off and running!

## Textbook exercises

The required textbook for the course was Lindly Haunani and Maggie Maggio's book *Polymer Clay Color Inspirations: Techniques* *and Jewelry Projects for Creating Successful Palettes*, which is a thorough study of color theory as applied to polymer. The students worked their way through the book, completing a variety of exercises and projects, but applying the techniques to their own style and format of work. One of the projects they completed was Haunani's personal-color-palette-inspired Pinched Petal Necklace.

Not wanting the class to become jewelry-centric, Levesque encouraged the students to choose whether to make a vessel, sculpture, or piece of jewelry using the components and techniques required for each project. As a result, students presented everything from jewelry to sculptural objects at each critique. The key was to learn about the material, not make a specific type of piece. Students were also encouraged to bring their own field of study into their projects, and experiment with and push their techniques based on personal expectations and skill level. They were free to try different formats for each of their projects to find which one clicked for them, but by the midpoint of the course, it was clear which students preferred jewelry, vessels, or sculpture. Each student's direction was beginning to take shape.

Some of the other techniques from the book the students completed were:

- Color inspiration collage
- Veneers, image transfer, and translucent inlays
- Log-cabin pin using stripe blends
- Faux-work techniques, such as ivory, coral, turquoise, wood, and pearl

## Studying the masters

One of the most important experiences in any fine-arts education is to study the masters in a given field to become familiar with what came before. On one hand, polymer students had an advantage — the history of the polymer field only goes back about 30 years. But on the other, the relative youth of the field means that historical collections of work or authoritative reviews of artistic antecedents are excedingly rare, if they exist at all.

One of the advantages of this pivotal course being offered in southern Wisconsin is its proximity to the Racine Art Museum (RAM), one of the first museums in the country to commit itself to showing and establishing a permanent collection of polymer art. The students were able to take a field trip to RAM, where curator Lena Vigna brought out some of the collection (handled with white gloves, as all other artwork in the collection is) for the class to view and study. Being able to see the artists' work and binders full of polymer samples in person solidified the importance of the class for the students, and they returned to their projects reenergized.

Because Levesque is also the director of the H.F. Johnson Gallery of Art (the Carthage College campus gallery), she coordinated a polymer exhibit, *A Re-visioning: New Works in Polymer,* with the RAM exhibition, *(in)Organic*, and the second polymer symposium, *Polymer 2.0: The Field at the Beginning of the 21st Century.* In a rare series of exhibitions and events, the students were able to immerse themselves in the work of master polymer artists, something that is, unfortunately, not a common experience.

## Put it in writing

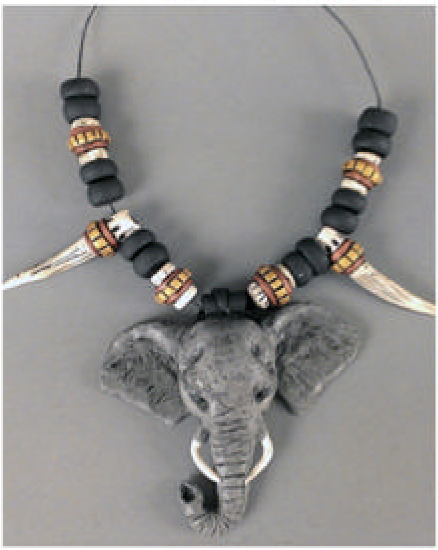
While learning about color theory through hands-on practice is key, so is internalizing what you've learned and applying those theories across medium boundaries

For more information on this groundbreaking class, visit the class blog at www.polymerclaycarthage.tumblr.com.

◀ **Melanie Grady hard at work adding color-matched caps to her beads.**

▼ **John Warnock works on his caned *Map of the U.S.A.* for his final project.**

▲ **Lena Vigna (*left*), curator at the Racine Art Museum (RAM), shows students part of RAM's permanent polymer collection.**



► **Another example of the variety of the faux techniques Levesque taught: student Clayton Irwin's *Faux Bone with Elephant Pendant*.**

Photos by Diane Levesque.

## a note from diane levesque

Headshot by Robert Kameczura.

Overall, this was such a rewarding class to pull together and teach. I must emphasize that without the feedback of Lindly Haunani and Maggie Maggio, I don't think the course would have been as cohesive as it turned out to be. Both offered much advice on the class schedule, which pasta machines to use, which ovens to purchase, and so many other things. Rachel Carren and Elise Winters were also very helpful as mentors as I was putting this program together.

through writing about it. Levesque often gave the students response assignments. They were shown work by an artist and their inspiration, and were required to pinpoint the artists' color or pattern inspiration. Often, she'd match up polymer art with work from other artists in different media, such as installation, ceramics, painting, etc. This helped expand the students' knowledge of polymer art and helped them place it in context within the larger art world.

## A race to the finish

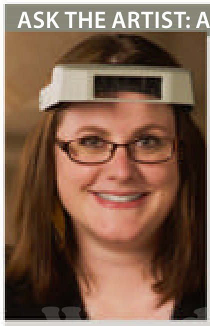
Just when it seemed as though everything was going smoothly, one month from the end of the semester, the students were about to run out of clay. On the verge of hitting up the local shops again to get the students enough clay to complete their final project, Levesque received the happy news that Polyform was going to donate new clay to the program! Now, not only would the students be able to complete the class, they also had some of the newest materials with which to work.

As the semester came to an end, the students excitedly finished their projects, and each put together a 15-minute presentation exploring his or her chosen polymer artist's inspiration, the technique or style they're known for, and the format of their work. Once new to polymer, each student left the class with a newfound understanding and appreciation of this modern and versatile material.

## Moving forward

The struggle polymer has had in recent years to overcome its stigma as a "child's toy" or "my grandkid plays with that stuff" is slowly fading away, due in part to the hard work of the artists themselves and this pivotal polymer class. The students who enrolled in the course signed up without knowing this history; it was simply a new material with which to create, a tool they could use to bring their ideas to fruition. While there's certainly room to grow and space to inject polymer further into fine-art discussions, this course elevates polymer and gives it additional credibility. Levesque hopes that educators who see the value in polymer as art will approach their own schools with a proposal to begin a course, that polymer artists without a degree will step up and apply to be visiting artists at universities, and that the teaching and acceptance of polymer at the college level will have a snowball effect around the country. The next polymer course is being offered at Carthage College in the Fall semester of 2015. ■

### ASK THE ARTIST: ANNIE PENNINGTON



**If you could study with one artist (living or dead), who would you choose?**

"'My choice changes daily! Right now, I'd choose to study with the ceramic artist, Sergei Isupov. I'd like to increase the narrative aspect of my work, and though he works in a different medium, his techniques and idea-development would be readily adaptable to my current work with metal and polymer."

Contact: www.anniepennington.com; apennington@artjewelrymag.com

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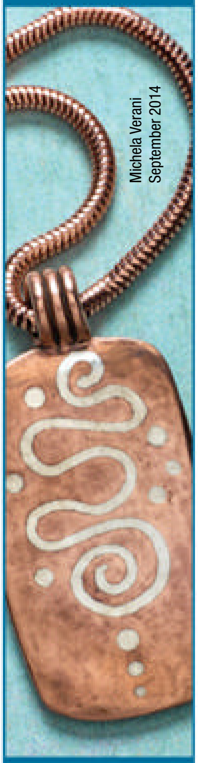

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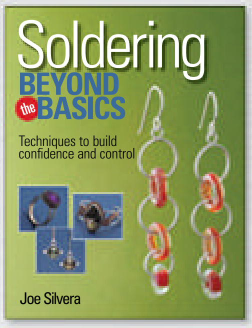
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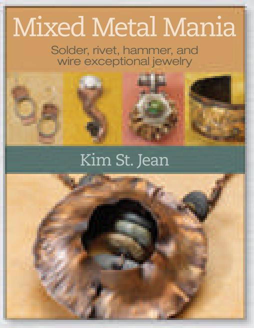
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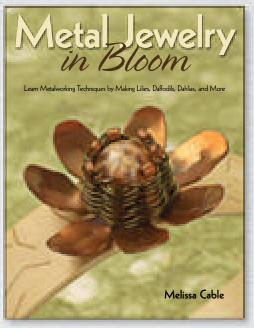
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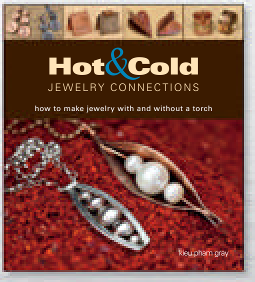
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August 2014
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No matter what medium you work in, there are some jewelry-making techniques that are so essential, you'll use them in nearly every project you make. These tutorials will walk you through the beginner techniques that you'll need to learn in order to make the projects in this issue.

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# metalworking techniques

## DRILLING/PIERCING

Place your metal on a steel bench block or anvil. Use a center punch and a mallet to create a dimple where you want to drill a hole, or in the section of the metal you want to remove (for piercing) **[Figure 1]**. Place the metal on a piece of wood and drill a hole at the dimple **[Figure 2]**.

Remove one end of the saw blade from the saw frame. Slide the blade through the drilled hole, then reinsert the blade into the frame, and tighten it. Pierce the inside section of the metal. Release one end of the saw blade from the frame so you can remove the blade from the metal.

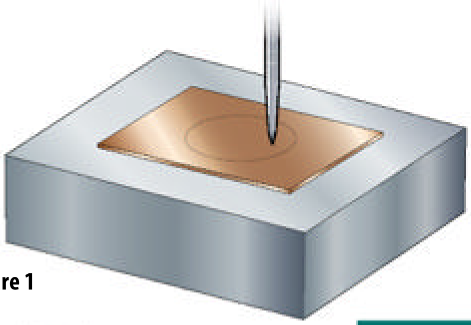


Figure 1

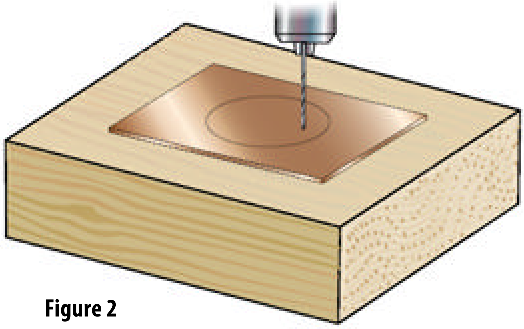


Figure 2

**ONLINE EXTRA**

Download a free "Metal Piercing Chart" to help you select the best saw blade and drill bit size for your project. Visit **www.artjewelrymag.com/reference**.

## SAWING

Select a saw blade that is the correct size for the gauge (thickness) of metal that you are going to cut ▨.

To thread a saw blade, insert the blade with the teeth of the blade facing down and out, away from the frame, into the top wing nut of the saw frame. Tighten the wing nut. Brace the handle in the hollow of your shoulder, and apply pressure to the saw frame against your bench pin. Maintaining pressure, insert the bottom of the blade into the wing nut closest to the handle, and tighten the wing nut **[Figure 1]**.

The blade should be taut and should make a high-pitched "ping" sound when you pluck it with your thumbnail. If you get a dull "twang" instead, reinstall your blade while putting pressure on the saw frame. Then, lubricate the blade.

When sawing, maintain an erect sitting posture with the top of your workbench at upper chest level. Slouching or having your work too low causes back and wrist strain and leads to broken blades.

To saw, grip the saw frame loosely. Use long, smooth motions, using as much of the blade as possible. The blade will work best when it's perpendicular to the metal **[Figure 2]**. Putting excessive pressure on the saw frame will make you work harder. Turn corners by sawing in place while slowly turning the metal; trying to turn the saw will break the blade.

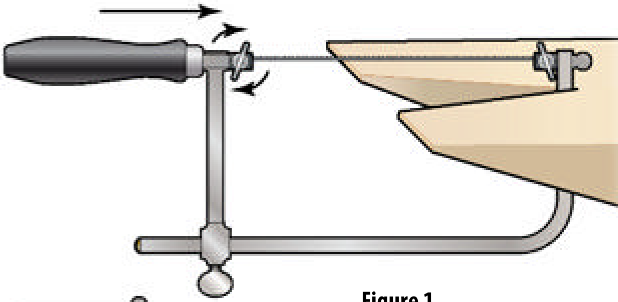


Figure 1

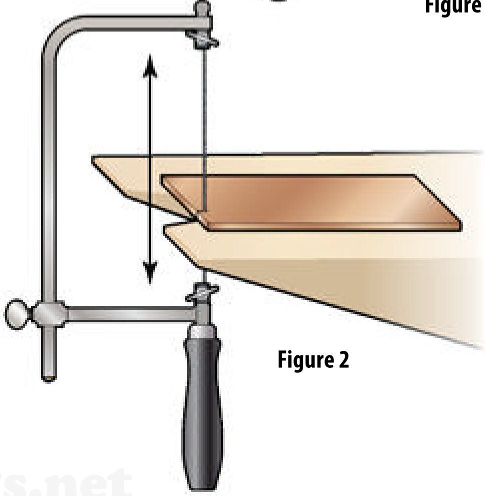


Figure 2

## POLISHING METAL

To polish metal, you'll need a buffing machine or a flex shaft plus a separate buff for each kind of prepolishing and polishing compound that you use. Thoroughly clean your jewelry piece between polishing steps, and take care not to cross-contaminate your buffs and compounds; this could result in ruined buffs and scratches in your piece.

To prepolish, secure a soft cloth buff on the buffing machine, or insert a miniature buffing-wheel bit in the flex shaft. To charge the buff, hold a stick of prepolishing compound, such as tripoli, against the spinning buff until the buff has a light coat of compound on its edge.

Press your jewelry piece against the charged buff, moving the jewelry piece continuously. Don't hold your piece against the spinning buff in one place for too long; you could end up wearing away material or creating scratches from the buff (called "drag marks"). Recharge the buff as needed.

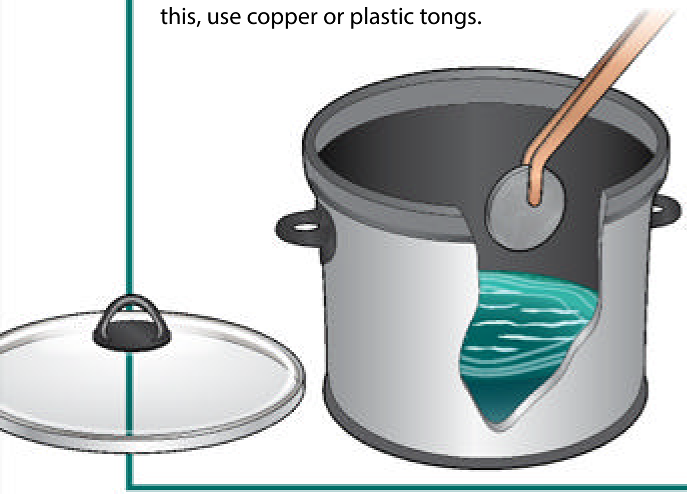
Clean your piece with dish soap and a soft toothbrush. If your piece is suitable, you could also clean it in an ultrasonic machine. Rinse and dry the piece.

To polish, charge a fresh buff with polishing compound, such as rouge. Polish your piece with the buff, recharging the buff as needed, until your piece is uniformly shiny and all evidence of prepolishing has been removed. Then, clean, rinse, and dry your piece.

## PICKLE

Pickle is a mildly acidic solution that cleans oxides from metal by removing small amounts of copper. Pickle is generally sold in powdered form and is available from jewelry supply companies. To make a pickle solution, follow the manufacturer's instructions to mix the powder with water in a pickle pot dedicated to non-food use.

If steel (binding wire or tweezers) comes in contact with used pickle, it can cause a chemical reaction that will copper-plate the metal in the solution. To prevent this, use copper or plastic tongs.



## SANDING

To give your metal the desired finish, smooth the surface and edges by sanding with progressively finer grits of sandpaper. Begin with a coarse grit (220–400) and work up to a fine grit (600–1000). Rub each grit of sandpaper back and forth in one direction. When you switch to the next finer grit, rub the sandpaper perpendicular to the marks from the previous grit until you can no longer see them.

## BEZEL-SETTING A CABOCHON

Press the cab into the bezel with thread or dental floss behind it to test the fit **[Figure 1].** The walls of the bezel cup should extend just beyond the point at which the stone begins to curve inward. A taller bezel will overshadow your stone; a shorter bezel may not hold your stone securely. As a general guideline, the bezel should be about one-third as tall as the stone.

Use the floss to pop the cab out of the bezel. If the bezel is too tall, reduce its height by sanding it face-down in a figure-8 motion on a piece of sandpaper placed on a flat surface.

Discard the floss and place the cab back in the bezel. View the bezel like the face of a clock, and, using a burnisher or bezel rocker, gently push the bezel down onto the stone, first at 12:00, then in opposition at 6:00. Repeat at the 3:00 and 9:00 positions. Work around the stone, pushing the bezel down with opposing moves to keep the stone centered and to keep the bezel from getting pleated. Smooth the pushed bezel with the burnisher by rubbing around the outer edges with a consistent pressure **[Figure 2].** Place masking tape over the stone to protect it, and use a pink rubber wheel in a flex shaft to polish the bezel.

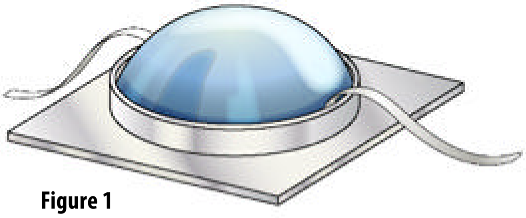


**Figure 1**

**The bezel will hold the stone securely if you position it where the stone starts to curve.**

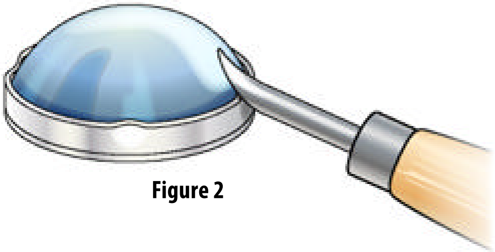


**Figure 2**

### SWEAT SOLDERING

Apply flux to both metal pieces you want to join. Place the smaller piece on a soldering pad. Heat the piece until the flux is a white crust. Place solder pallions on the smaller metal piece, and heat it until the solder flows **[Figure 1]**. Using soldering tweezers, quickly position the smaller metal piece solder-side down on the larger piece. Heat both pieces until the solder melts again **[ Figure 2]**.

A bright line of silver may appear at the edge where the two metal pieces meet, or the smaller metal piece may slightly drop to indicate that the solder has reflowed. Quench the piece in water.

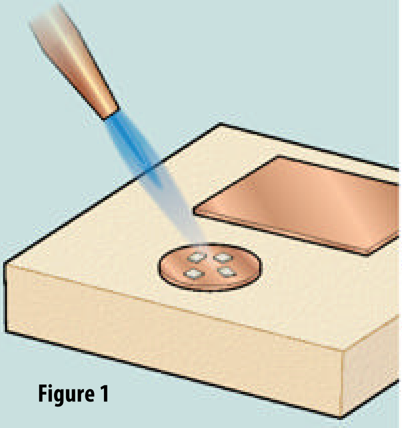


Figure 1

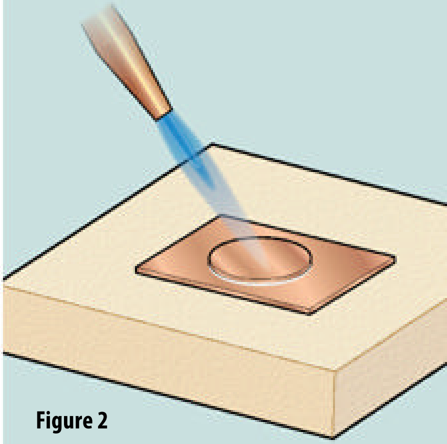
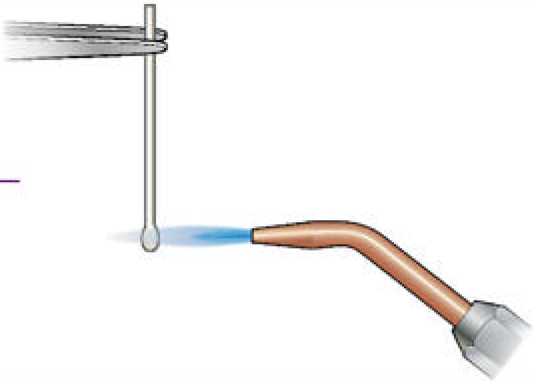


Figure 2

## wireworking technique

### BALLING UP WIRE

Use cross-locking tweezers to grasp a piece of wire at its midpoint, and dip the wire in flux. Hold the wire vertically, and lower one end of the wire into the tip of the inner blue cone of your torch's flame. After a ball forms at the end of the wire, remove the flame, and then quench, pickle, rinse, and dry the wire.

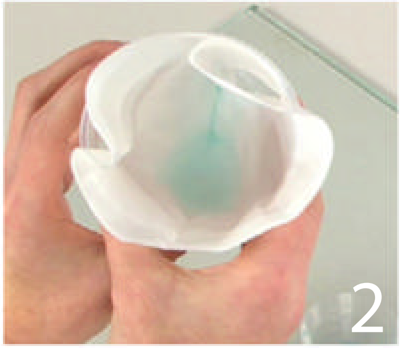


## enameling techniques

### WASHING ENAMELS

To prevent transparent enamels from appearing cloudy after they're fired, you must wash them before you use them. Washing removes the porcelain-dust byproduct, or "fines," from the manufacturing process. Place the dry enamel powder in a small cup, and fill the cup with distilled water. After a few moments, the enamel grains will settle to the bottom of the cup and the water will be cloudy from the fines **[Figure 1]**. Pour the cloudy water into a coffee filter that you've placed in a large cup. The filter will catch the fines **[Figure 2]**. Refill the enamel cup with distilled water, and repeat this process until the runoff water is no longer cloudy. You can save the fines from the coffee filter and add them to your counterenamel.

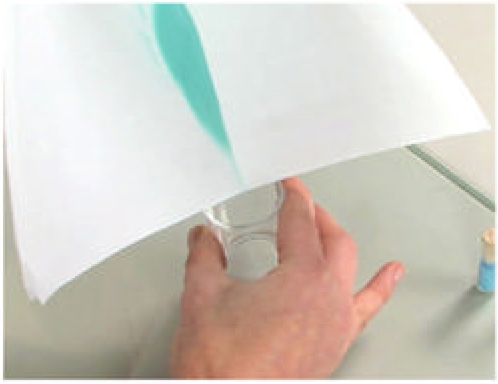
1



2

### DRYING AND STORING ENAMELS

Place clean, wet enamels onto a creased sheet of paper. Cover the enamels with another clean sheet of paper while the grains dry; this prevents dust or other contaminants from getting into your enamels. When the enamels are dry (they'll look like grains of dry sand), use the crease in the paper to pour the dry powder into a container that has a tight-fitting lid or stopper. Label the container with the enamel color code and mesh number.



# toolboxes

See everything in these toolboxes and download a PDF at www.artjewelrymag.com/reference.

## Enamel

- Alundum stones: 150 grit, 220 grit
- Distilled water
- Dust mask
- Enamel sifters
- Fiberglass brush
- Fine-tip paintbrush
- Firing fork
- Heat-resistant gloves
- Kiln, kiln shelf
- Kiln-safe glasses
- Klyr-Fire enameling adhesive
- Mesh firing rack
- Safety goggles
- Scooper
- Scouring pad
- Scribe
- Spatula
- Spray bottle
- Trivet
- Tweezers: regular and bentnose

## Finishing

- Brass brush
- Copper tongs
- Files: hand, needle
- Flex shaft or buffing wheel, buffs, polishing compound
- Liver of sulfur or other patina, lidded glass container
- Microcrystalline wax
- Polishing cloth
- Polishing papers
- Sandpaper: various grits
- Scouring pad
- Steel burnisher
- Steel wool
- Tumbler, steel shot, burnishing compound
- Ultrasonic cleaner

## Hammering

- Bench block or anvil
- Hammers: ball peen, chasing, cross peen, dead blow, utility
- Mallet: rawhide or plastic

## Sawing/piercing

- Adhesive bandages
- Alligator tape (optional)
- Bench pin
- Center punch: manual or automatic
- Dividers
- Files: hand or needle
- Flex shaft, drill bits
- Jeweler's saw frame, saw blades
- Lubricant or beeswax
- Rubber cement or glue stick
- Safety glasses

## Soldering/Annealing

- Anti-flux
- Binding wire
- Borax (for borax solution)
- Copper tongs
- Fire-resistant surface: soldering pad, firebrick, or charcoal block
- Flux, flux brush
- Pickle pot with pickle
- Sandpaper: various grits
- Solder: hard, medium, easy
- Soldering pick
- Sparker: manual or automatic
- Third hand, insulated cross-locking tweezers
- Torch, various tips
- Tumbler, steel shot, burnishing compound

# safety basics

## Enamel

- Wear a dust mask.
- Do not touch your eyes, nose, mouth or other sensitive areas.
- Wear fire-retardant gloves or mitts when loading and unloading the kiln.
- Follow manufacturer's instructions for operating your kiln.
- Use a fiberglass brush under water; avoid skin contact.
- Use an alundum stone under water.
- Consult your local hazardous waste center for proper disposal methods for glass.

## Metals

- Wear eye protection at all times while working with metals, wire, and metalsmithing tools.
- Wear a non-flammable apron to protect your clothing.
- Tie back long hair.
- Work in a well-ventilated area at all times.
- Wear closed-toe shoes.
- Do not wear clothing or jewelry that might get caught in machinery or catch fire.

## All media

- Wear a dust mask while working with materials and tools that generate particulates.
- Read all Safety Data Sheets (SDSs) before using a new material, and keep a copy of the SDS for any material you use.
- Do not use tools or chemicals in ways that are contrary to the manufacturer's intended purpose.
- Wear protective gloves while handling caustic materials or chemicals.
- Keep a properly rated fire extinguisher and a source of clean water near your workstation.
- Keep cutting tools sharp and all tools and equipment properly maintained.

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- Jeanie Pratt, www.jeaniepratt.net
- Casey Sheppard, www.caseysheppard designs.com
- Patricia Tschetter, www.tschetterstudio.com

41

## suppliers

### TRY YOUR HAND AT GUILLOCHE

*page 36*

- Screw and bolt: Amazon, www.amazon.com (screw: B000FMWAZG and bolt: B000FMW43Y)
- Powdered enamels: Clear enamel flux for silver (Bovano flux) and transparent colored enamel (Ninomiya N18 peach medium): Enamel Emporium Houston, www.enamelemporium.com
- Thread fastener (Locktite): Local hardware store
- Spirograph: Online suppliers or Target department stores, www.Target.com
- All tools and materials: Rio Grande, *below*

46

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36

### DON'T SETTLE FOR A PLAIN BEZEL

*page 46*

- All tools and materials: Otto Frei, *below*

### FORGE STEEL PIPE TO CREATE A CAPTURED-COIN RING

*page 56*

- All tools and materials: Local hardware store

### EARRINGS: GRADUATED TUBE EARRINGS

*page 61*

- All tools and materials: Rio Grande, *below*; Otto Frei, *below*; or Metalliferous, www.metalliferous.com

56

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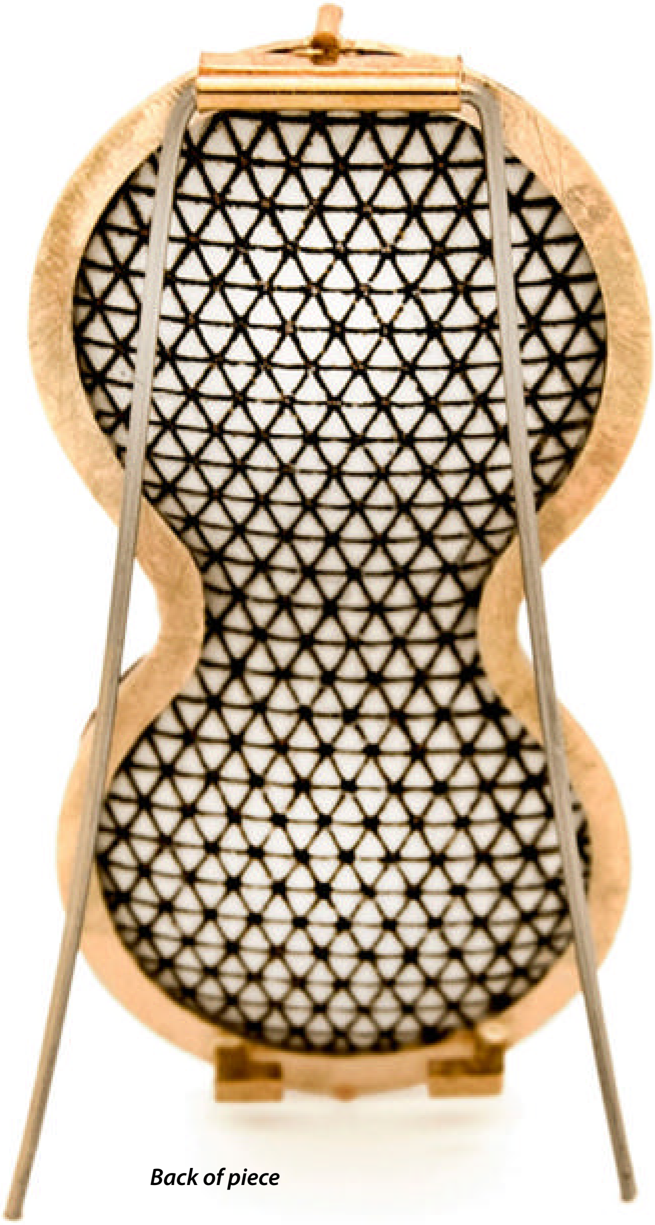
Aelectronic Bonding, Inc. ... 8
Alpha Precision Abrasives, Inc. ... 79
American Jewelers Institute ... 80
Arrowhead Lapidary & Supply, LLC ... 28
Art Jewelry Books ... 69
Art Jewelry magazine ... 24
Art Jewelry magazine-Digital ... 77
■ **ART JEWELRY MONTHLY DESIGN CHALLENGE ... 71**
Aves Studio ... 69
Bead&Button magazine ... 80
Bead&Button Show 2015 ... 72
beadFX ... 8, 80
Billanti Casting Company, Inc. ... 70
■ **CONTENTI COMPANY ... 83**
Cool Tools ... 25
Covington Engineering Corp. ... 28
CraftOptics ... 24
Diamond Pacific Tool ... 29
Eastern Findings Corporation ... 25
Evenheat Kiln, Inc. ... 76
■ **FIRE MOUNTAIN GEMS ... 84**
Gem & Lapidary Wholesalers ... 23
GNW Designs, Inc. ... 80
Greco ... 80
Halstead Bead, Inc. ... 72
ImpressArt ... 77
Jewelry Designer Manager ... 8
Jewelrythings, Inc. ... 80
Jewelspan ... 80
Kentucky Guild of Artists ... 80
Lillypilly Designs ... 70
Lortone, Inc. ... 70
Minnesota Lapidary Supply Co ... 28
Monsterslayer, Inc. ... 24
Munro Crafts ... 80
Nunn Design ... 69
■ **OTTO FREI ... 7**
■ **PANDAHALL.COM ... 78**
Paragon Industries, Inc. ... 80
PMA Craft Show ... 29
pmcsupply.com ... 8
Polymer Clay Express ... 80
Potter USA ... 25
Reactive Metals Studio ... 8
■ **RIO GRANDE, INC. ... 2**
Royalwood, Ltd. ... 80
Ruidoso Metal Works, Inc. ... 80
Santa Fe Jewelers Supply ... 29
Satin Cord Store ... 79
Speedbrite ... 29
Tripp Lake Camp ... 72
Tru-Square Metal Products, Inc ... 28
Urban Beader, The ... 70
Volcano Arts ... 70
Waymil International ... 19
■ **WUBBERS ... 3**
Wirework Spring 2015 ... 28
Xuron Corporation ... 70

classes & workshops section

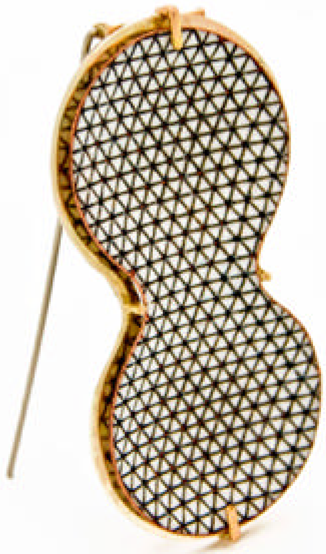
■ **ACADEMY OF ART UNIVERSITY ... 15**
Beaducation ... 16
Cindy Pankopf's Creative Place ... 18
Creative Side Jewelry Academy ... 16
Davide Bigazzi Studio ... 19
Drouhard Nat'l. Jewelers School ... 16
Elentari Handverk ... 16
■ **GEMOLOGICAL INST. OF AMERICA ... 17**
Genevieve Flynn Studio ... 18
GRS Tools ... 19
Idyllwild Arts ... 18
John C. Campbell Folk School ... 16
Mendocino Art Center ... 14
North Bennett Street School ... 16
Now That's a Jig!/Brenda Schweder ... 18
Otto Frei ... 14
Peninsula School of Art ... 18
Penland School of Crafts ... 18
Peters Valley Craft Center ... 14
Revere Academy of Jewelry Arts ... 19
Roadhouse Arts ... 14
Silvera Jewelry Studios ... 18
Studio JSD ... 14
Taos School of Metalsmithing ... 18
Terri McCarthy Studios, LLC ... 16
Texas Institute of Jewelry Technology ... 19
Touchstone Center for Crafts ... 16
William Holland School of Lapidary Arts ... 18
Woven Wire Studio ... 14

■ **denotes full page ad**

**Video!** See a video of Arthur Hash laser-etching his jewelry at **www.artjewelrymag.com/reference.**



*Back of piece*



*Front of piece*

AT A GLANCE

***Title:*** Laser-etched Enamel Brooch
***Artist:*** Arthur Hash
***Info:*** Made of 14k gold, enamel, and copper, with a stainless steel pin stem; approximately 2⅛ x 1 x ⅜ in. (55 x 25 x 9.5 mm).
***Contact:*** www.arthurhash.com

# High-tech Hybrid Etching

For his laser-etched brooch, **Arthur Hash** visually plays upon the high-resolution polygons and triangles that compose objects in digital 3D modeling. After creating a smooth enamel surface, Hash uses a laser to etch an intricately detailed pattern into the enamel. The laser, producing pinpoint temperatures of up to 2500°F (1371°C), essentially vaporizes the enamel, leaving a black recessed line. The remaining enamel surface retains its high-gloss finish, resulting in the contrast of both surface color and texture. In the finished brooch, facets that might be so small as to be unnoticeable to the human eye in a 3D digital surface become a distinct and dramatic cage-like design — the focal point rather than the compositional structure. The result is a piece that teases the eye by appearing to be transparent but is instead opaque; the back of the piece has its own matching laser-cut pattern. —*Rachel C. Frye*

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